AVIATION

The Oldest American Aeronautical Magazine

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A three engined (Ford) Maddux air liner over Santa Clara Valley, Calif.

VOLUME XXIV

NUMBER 26

Special Features

The Bird Wing "Imperial"
The Wright "Cyclone" Engine
Assembly Methods in the Stearman Factory

AVIATION PUBLISHING CORPORATION
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The Southern Cross taking off at Oakland, Calif

On the Kingsford-Smith Flight

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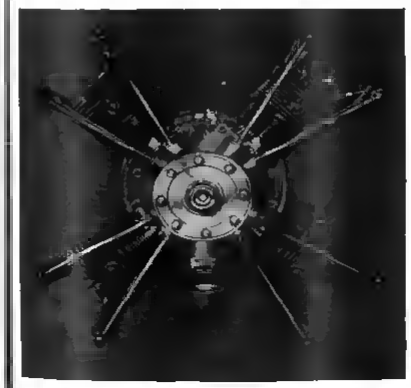

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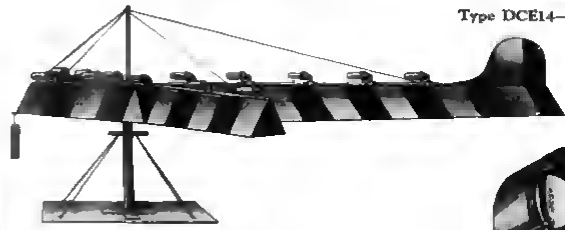

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Vol. XXIV JUNE 25, 1928 No. 26

Airplane Radio Progress

TO PRAISE any one member of the crew of the "Southern Cross" is to praise all four, for each was vitally instrumental in making that aerial voyage such a great success. Altogether it was a splendid demonstration of piloting and navigating ability, and it will undoubtedly be entered in aeronautical records as one of the greatest airplane flights ever achieved by man.

However, from the standpoint of the development of over water flying, the most gratifying feature of the trip of the Southern Cross was not that a new over water distance record was established, or that a new air trail was blazed. It was the fact that through the aid of radio the crew of that plane was in communication with the civilized world for practically every foot of the way.

It goes without saying that radio will be standard equipment on all long distance planes of the future. Like trans-oceanic liners, trans-oceanic planes will make their trips according to a schedule and will acquaint those on shore with their position at all times. In case of a forced landing at sea it will be the radio that will summon assistance. In short, radio on a plane is not only a useful addition, it is an essential part of the plane's equipment if the safety factor is to be raised to the maximum. The value of radio on planes has been demonstrated many times and the members of the radio industry who are bending their efforts toward the improvement of suitable airplane radio equipment are rightfully deserving of the encouragement and cooperation of the entire aeronautical industry.

Profit by Failure

SCIENCE IS supposed to deal with facts and there fore should not fall into the common error of emphasizing that which succeeds and minimizing that which is a failure. Yet, in the reports of most of our wind tunnel and aerodynamic laboratories we read only of successful results. Much of the work that is done in wind tunnels is never seen by the industry's engineers because it does not contain results which can be applied in practice. These negative results, however, may be of as much value to engineers as positive results. They might not only prevent the doing of work which would necessarily end in failure, but also suggest positive ideas or ways of overcoming the difficulties that were encountered.

As far as the manufacture and operation of aircraft are concerned it would be of inestimable value if we could learn of some of the real reasons for failures. At present, news of failures is spread by malicious gossip of competitors. In many cases it would pay to frankly admit mistakes or difficulties and to show how they had been overcome rather than have the stories circulate in an underhand manner. The idea now existent in the minds of many that the only real way to boost aviation is to never admit difficulties is carrying things too far. After all, for one to admit that there are difficulties does not mean that that person considers them insurmountable.

The Bunkum Artist

THE FLOOD tide of enthusiasm which has been sweeping aeronautics forward has also carried forward in its wake the unholy crowd of rascals who prey upon a gullible public. The frauds perpetrated range all the way from the sale of membership in so-called "Societies" to the sale of stock in aeronautical ventures which are either actually non-existent or so badly planned that they cannot succeed. The enterprises are being run by very plausible gentlemen who can recite a history of splendid past achievements, and how they have now turned to aeronautics for purely altruistic reasons. There is no positive way to identify these gentlemen but on the whole they avoid contact and association with those who are actively engaged in aeronautics, and especially with those who have been in the business for a considerable length of time and so could know their past history.

Investigating the activities of this crew and getting the goods on them takes a long time, and is often dangerous work on account of the possibilities of libel suits. Unless their actions become too flagrantly fraudulent the average man engaged in aeronautics is apt to steer clear of any contact with them. There are, however, ways in which those fliers who really know about fraudulent activities can get them investigated without too much trouble to themselves. Besides the Chambers of Commerce and Better Business Bureaus there is the daily press. At present as in times past the press is keen to investigate fraudulent actions and to publish the results if the fraud can be verified. The average aeronautical reporter is young and active and wishes to push his section of the paper. If those in your community who are enthusiastic about aviation are being preyed upon take the matter up with a reporter. He may be able to write up a story on it which will undoubtedly spoil the business of the bunkum artist. This sort of thing has been done before and therefore can be done again.

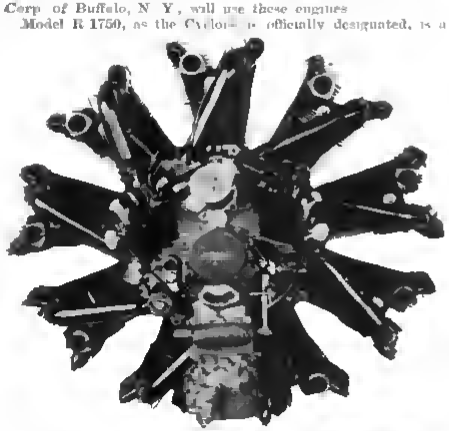
The Wright "Cyclone" Engine

Model R-1750 is a Nine Cylinder Air Cooled Radial Designed for Heavy Duty and is Rated at 525 Hp. at 1900 R.P.M.

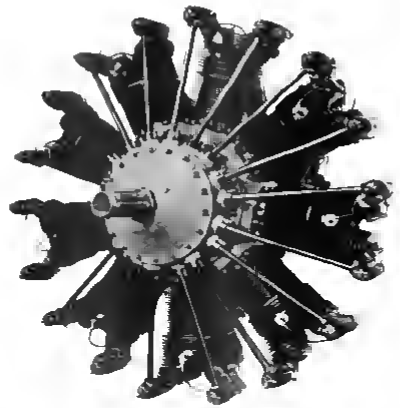
AFTER A number of years of development work and experimentation with large air cooled radial engines, the Wright Aeronautical Corp., Paterson, N. J., is starting production on the Wright "Cyclone", a nine cylinder air cooled radial rated at 525 hp at 1900 r.p.m. This engine was developed by the Wright Aeronautical Corp. in cooperation with the Bureau of Aeronautics of the U. S. Navy. The first production order is for 148 of these engines for the Navy Department and it is understood that a number will also be produced for the Army Air Corps. Production facilities are being rapidly increased at the Wright plant to take care of these government orders and the Wright company expects to manufacture a small surplus for commercial sales. These will be available approximately by November of this year. Great interest has been exhibited by a number of leading aircraft manufacturers who indicate that a number of new designs around this engine are being made and that these planes will be in the air some time in 1929.

A number of experimental engines of this type have already been produced and have been flown in six different types of planes, including the Wright XO-3 observation plane, the Keystone Army XLB-6 "Panther" bomber, the Douglas T2D-1 twin engined seaplane, the Martin T3M-3 biplane, the Douglas PD-1 twin engined flying boat, and the Navy PN-12, which a short time ago established four world records for seaplanes. It is understood that the twin engined flying boat being developed by the Hall-Aluminum Aircraft Corp. of Buffalo, N. Y., will use these engines.

Model R-1750, as the Cyclone is officially designated, is a



Rear view of the "Cyclone" showing the [illegible] and Stromberg carburetor.



Front quarter view of the Wright "Cyclone" 525 hp. engine.

direct development from the model P-2, one of the first radial engines with a built-in, gear-driven supercharger. This engine was the successor of the Wright P-1, the development of which was started in 1923 after the acquisition of the interests of the Lawrance Aero Engine Corp. by the Wright Aeronautical Corp. Before that time the Wright company had started work on large air cooled radials with the development of the R-1 in 1920.

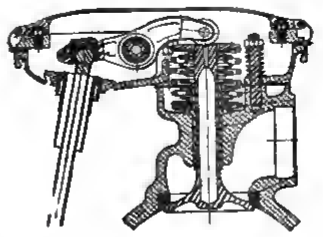
The R-1750 is a nine cylinder radial designed for heavy duty in the field where radial engines are now used. It has a bore of 6 in. and stroke of 6½ in. giving a piston displacement of 1750 cu. in. The compression ratio is 5 to 1 and the rated speed is 1900 r.p.m. At this speed the engine normally develops 540 b.hp. though the guaranteed power is 525 b.hp. On test, the engine has developed considerably more than 550 hp. The average weight of these engines is 760 lb. giving a specific weight of 1.45 lb. per rated hp. It has an overall diameter of 53 15/16 in. and an approximate length of 40⅝ in.

In appearance, the Cyclone resembles the Wright J-5 or Whirlwind, and many of the details of construction are identical, though somewhat larger. The Cyclone, of course, is a much more modern design and incorporates many features not in the Whirlwind such as a rotary induction system. The cylinder and valve arrangement is almost identical with both intake and exhaust ports opening to the rear and the valve gear and push rods in front. The cylinder barrel is a steel forging with machined fins. Screwed and shrunk onto this is the cylinder head. It is a Y metal casting incorporating a dome shaped combustion chamber with the two spark plugs each diametrically opposite in a horizontal position, one in front and one in the rear. At the right side of the head, looking forward, is the intake port and opposite is the exhaust port. As mentioned above, these ports lead to manifolds in the rear. Shrunk into the cylinder heads are the bronze valve seats for the tulip type intake and exhaust valves. That of high temperature resisting alloy steel. The stem of the exhaust valve is larger than that of the intake valve, as it is salt cooled. The valve mechanism is exactly like that on the J5, of course enlarged. The rockers are supported by and enclosed in a cast aluminum alloy box attached to the cylinder head by three studs. The bearings are lubricated by means of Alemite fittings. The rocker arms have roller followers in contact with valve stems and are actuated by push rods housed in an aluminum tube.

Pistons of "Waffle" Head Type

Short Y alloy pistons are used. They are of the "waffle" head type, that is, there are ribs in the head running in both directions. There are three grooves in the sides of the pistons for the six piston rings, of the narrow type, two in each groove. A combination of oil scraper and compression rings is used in one groove. Full floating wrist pins operate in bronze bushings inserted in the connecting rods. These connecting rods are of H section and, as is usual in Wright engines, they are alloy steel forgings. The master rod is of the one piece type with the crank pin bearing babbitted. The knuckle pins are located in the master rod in an original manner. There are eight knuckle pins and they are locked to the master rods in pairs. Each adjacent pair is held in place by a lug over the end of the pins. This lug is bolted to the master rod. Two lugs are used for each pair of adjacent knuckle pins, one lug on each side.

The crankshaft is of two piece type with the crank pin, front cheek, and propeller drive integral. The propeller shaft is splined and tapered, providing for the drawing and centering of the propellar hub. The rear cheek is split and clamped to the crank pin by a large bolt. Mounted on the

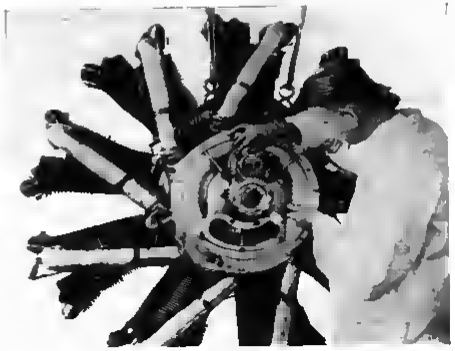


Cross section drawing of the valve mechanism on the R-1750 "Cyclone" engine.

rear crank cheek is a large roller bearing while the main bearing, in front, is of the plain babbitted type. The front thrust bearing is a deep groove ball bearing.

Only the rear roller bearing is supported on the crankcase proper. The crankcase is a one piece casting of aluminum alloy. Bolted to the front of this is what is called the intermediate crankcase. This houses the cams and carries the front main bearing and valve tappet guides. A double track cam is driven from a spur gear on the front of the crankshaft between the main bearing and the thrust bearing. The cam followers are of Y alloy while the cam rings are one piece steel forgings with machined cam lobes and internal gears. The valve tappets are similar to those on other Wright engines and have roller followers.

Bolted to the rear of the crankcase is the General Electric Co. centrifugal impeller driven at 6.8 times crankshaft speed by gears on a long splined shaft attached to the rear cheek of the crankshaft. This drives a counter shaft above the



Removing the supercharger drive gears on the R-1750 "Cyclone" engine.

center line of the engine. On this counter shaft is a pinion engaging three gears, one bevel gear driving the generator, one pinion to the main accessory drive, and one large gear driving a pinion on a hollow shaft on which the impeller is keyed. On the back of the main accessory drive is a helical gear which drives two angular shafts, the top ends of which are arranged for gun synchronizer drive. At the bottom are two bevel gears, the one on the left is connected to the oil pump and the one on the right is connected to the fuel pump.

The oil pumps include a double scavenger pump and one pressure pump. Internal oil lines in the casting of the crankcase lead from the pressure pump to the front main bearing, from which oil, under pressure, passes through a tube in the crankshaft to the knuckle pins. The cylinders and wrist pins are lubricated by spray. The oil pump runs at 1¾ times crankshaft speed and at normal speed pumps 26 lb. of oil a minute at from 45 to 65 lb. per sq. in. The guaranteed oil consumption is .036 lb. per b.hp. per hr. The fuel pump operates at a pressure of 2 to 4 lb. per sq. in. One Stromberg double barrel NA-Y7A carbureter is used, it feeds gasoline to the center of the impeller from where it is driven out radially by centrifugal force to the manifolds leading to the cylinders.

The ignition system is almost identical to that on the J5 engine. Two Scintilla V-AG-9D magnetos are used, driven at 1½ times crankshaft speed. B-G spark plugs with .015 in. gap are standard equipment. The spark occurs, in crankshaft degrees, at 30 deg. before top dead center.

Provision is made on the rear of the engine for the mounting of any standard type starter as well as aircraft generator. All Cyclone engines are fitted with a carbureter intake heater identical to that on the J5.

The specifications on the R-1750, as supplied by the manufacturer are as follows:

Type ..... radial air cooled
Number of cylinders 9
Bore ..... 6 in.

Continued on page 1863

News Notes *of the* Detroit Air-Olympics

By JOHN T. NEVILL

BECAUSE OF the difficult conditions confronting pilots in the forthcoming National Air Tour, scheduled to take off from Ford Airport as a major feature of the Detroit Air Olympics June 30, the Aircraft Events Committee of the Detroit Board of Commerce, sponsors of the program, have taken steps to change the tour rules on a certain portion of the route.

At present the rules require each entry to maintain an average of 80 per cent of their maximum speed as shown in the pre-tour tests on the airport, if they are to be given credit for the maximum in the formula by means of which their score is obtained. Following a report from Ray Collins, traveling referee of the tour, on flying conditions over the western half of the route, William B. Mayo took the initiative in suggesting that the required average speed over legs between Waco, Tex., and Great Falls, Mont., be reduced from 80 per cent of the maximum to 75 per cent of the maximum. The rule requiring planes to carry at least 75 per cent. of their maximum contest load, as set in the pre-tour tests, if they are to be given credit for the maximum, will remain as it is.

E. F. Schlee and W. S. Brock standing beside the Bellanca CH monoplane they are planning to use in the Tour

The foregoing steps to alter the rules were taken at a special meeting of the committee, following the return of the pathfinder plane after a pathfinding flight over the 6,300 mi. route.

Ray Cooper, manager of aircraft events for the Board of Commerce, has announced the tour schedule as follows: Indianapolis, June 30 (noon); St. Louis, June 30-July 2; Springfield, Mo., July 2 (noon); Wichita, July 2-3; Tulsa, July 3-5; Fort Worth, July 5-7; Waco, July 7 (noon); San Antonio, July 7-9; Marfa, Tex., July 9 (noon); El Paso, July 9-10; Tucson, July 10-11; Yuma, July 11 (noon); San Diego, July 11-12; Los Angeles, July 12-14; Fresno, July 14 (noon); San Francisco, July 14-16; Corning, Calif., July 16 (noon); Medford, Ore., July 16 (service stop); Portland, July 16-18; Tacoma, July 18-19; Spokane, July 19-21; Missoula, Mont., July 21 (noon); Great Falls, July 21-22; Froid, Mont., July 22 (noon); Minot, N. Dak., July 22-23; Fargo, N. Dak., July 23 (noon); St. Paul (Twin Cities), July 23-25; Wausau, Wis., July 25-26; Milwaukee, July 26-27; Chicago (Hammond, Ind.), July 27-28; Battle Creek, July 28 (noon).

There still is some possibility, Manager Cooper said, that the itinerary on the "home stretch" of the route will be altered to give Minot, N. Dak., a week day stop-over instead of a Sunday arrival.

The only official entries in the tour, at this writing, are three. The Bellanca Aircraft Corp. has entered a Bellanca monoplane, owned by the Wayco Air Service, Inc., (Edward F. Schlee), and piloted by William S. Brock. The Ford Motor Co. has entered a tri-engined Ford monoplane, owned by the Texas Oil Co., and piloted by Frank M. Hawks; and the Travel Air Manufacturing Co. has entered a Travel Air Caminez powered biplane to be flown by George Meissner. Approximately 20 additional planes have been promised for entry.

Fifteen Route Applications Rejected

Enthusiasm along the tour route this year is at a higher peak than ever experienced before, the pathfinders report. Applications from at least 15 cities for places on the route have had to be rejected.

William B. Mayo has extended personal invitations over his signature to 4,200 airplane owners in the United States, asking them to fly to Detroit to attend the Air-Olympics. Free parking space for their planes has been promised the owners. It is hoped that Detroit will see the greatest collection of commercial airplanes ever before collected together in the world.

With receipt of word from England that that country will be unable to enter a balloon in the James Gordon Bennett International Race, entries in the balloon feature of the Air-Olympics will be limited to 15 bags, 12 of them being from foreign countries.

The American Society of Mechanical Engineers, Detroit section, has arranged for a dinner to be tendered members of that society during their three day annual national meeting to be held in Detroit in conjunction with the Air-Olympics. The banquet will take place on Thursday, June 28, at completion of the first day of the meeting. It will be held at the Book-Cadillac Hotel, and Alex Dow, president of the Detroit Edison Co., and president of the national society, will be toastmaster. Speakers on the dinner program will be Charles L. Lawrance, designer of the Wright Whirlwind engine; F. Handley Page, famous British airplane designer; and Gen. W. W. Atterbury, president of the Pennsylvania Railroad.

Continued on page 1862

Assembly Methods *in the* Stearman Factory

By WILLIS PARKER

THE ROUTES followed by the various sub-assemblies in the factory of the Stearman Aircraft Co., Wichita, Kan., are almost on parallel lines. As a result they meet at one end of the plant, are "wadded" and leave the factory as a completed airplane.

In many respects the plant of the Stearman company differs materially from most of the airplane factories that the writer has been privileged to visit. There are many features of the building construction and plant arrangement that refute the contention that various types of work should be

[illegible] of the factory of the Stearman [illegible] Wichita, Kan.

accomplished in separate buildings. Insurance rates have governed the plans of many manufacturers, but a study of the Stearman arrangement raises a question relative to insurance rates and causes one to wonder if the lower insurance rates permitted under the unit buildings scheme offset the savings in manufacturing costs made possible by parallel lines, straight line production, where all of the work necessary on an airplane is accomplished in one building.

We shall admit in the beginning that the Stearman plant was originally constructed for the manufacture of automobiles and that it has been adapted to airplane construction by the Stearman engineering department. But the adaptation has been made in a manner that could scarcely be improved upon, and the company began with the vacant ground and erected [illegible] factory.

The building is 175 ft. long and 80 ft. wide without a pillar or post anywhere to obstruct the free movement of materials and machinery. The ceiling extends to the ridge pole and it is 30 ft. to the ridge from the floor. The walls are 15 ft. high and are 12 in. thick—of brick and stone. Windows line the two side walls, thus flooding the whole interior with light. The length of the building is north and south.

The stock rooms for the raw materials and the finished parts are at the south end, hence the materials and the work progress from south to north where the completed plane emerges. Theoretically there are four lines and the work starts simultaneously on all four lines to end up at the north end of the building in the final assembly.

The plan followed by the company is that of assembling sub-assemblies, according to Max Short, vice president and chief engineer. There are five main sub-assemblies:—

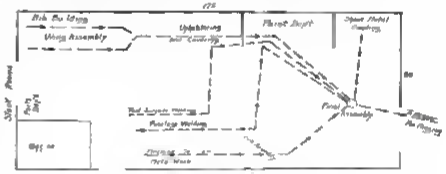
1st—Tail skid and stick assemblies.
2—Rudder, pedal and brake assemblies.
3—Stabilizer assembly.
4—Landing gear assembly.
5—Rear seat assembly.

The fuselage and wings are separate production problems, but because of their size, they do not present the problem in assembly that the smaller units do, and one of the production problems of almost any airplane manufacturer is the final assembly where the various small parts are attached. If they are attached separately the amount of hand work, required to make all parts fit, delays production.

In the sub-assemblies, the units are complete and constructed so that they fit exactly where desired when the final assembly takes place. They are also equipped with the necessary bolts, screws, washers, etc., thus eliminating the necessity of the assemblers running to the parts department several times, in the course of the final assembly, to obtain them.

A glance at the accompanying sketch of the floor plan shows that the wing stock is kept in the extreme southwestern corner of the building. From this point, the wing construction proceeds along the west side of the building until they reach the "dope" department, the successive stages being rib construction, assembly of the ribs and spars, varnishing of the wood, covering, then doping.

The tubing rack and steel stock is carried at the south end of the building also and the material is fed into three lines where metal material is needed. Along the east side of the



Sketch of the Stearman plant showing the routing of various sub-assemblies in the final assembly

building is the machine tool, metal working department, and as the work proceeds down this line it reaches the sub-assemblies of landing gear, control system, stabilizer adjustment. These units, in turn meet the other units in the assembly department which is situated in the southeast portion of the building.

Paralleling the machine tool department, is the fuselage

Continued on page 1861

The Bird Wing "Imperial"

Three Place Biplane Powered With an OX-5 Engine has a High Speed of 90 M.P.H. and Lands at 30 M.P.H.

R. T. McCRUM, chief engineer of the Bird Wing Commercial Aircraft Co., St. Joseph, Mo., is the designer of the Bird Wing "Imperial" biplane, which will shortly be put into production by that company. At the present time a number of these planes have already been completed, but, according to Mr. McCrum, production will not be started until the Department of Commerce has granted an approved type certificate. A small number of these planes are now being produced for use at the Bird Wing Flying School.

The Bird Wing Imperial is a conventional type, single bay biplane, powered with an OX-5 engine. The design incorporates a number of original features and is stated to be of very sturdy construction, to withstand abuse by students. The wings are of conventional design with routed spruce spars and built up ribs of spruce and mahogany plywood. The airfoil is an Aeromarine 2. The internal drag wire bracing is at present of hard aircraft wire, and fittings are made of mild steel. The compression members in the center section and at the flying wire fittings are of large size and heavy gauge steel tube. The external bracing is tie rods, either Hartshorn or MacWhyte. The leading edge is of formed spruce and the trailing edge of galvanized steel wire. The covering is Flightex, made up in envelope and shipped on the wings and tacked at the wing tip. The finish is of pigmented aluminum dope and the interior wing parts are protected by three coats of spar varnish. The upper wings are wired for navigation lights.

The ailerons, four in number, are of narrow chord, rectangular in shape, and are hinged onto the wings by vertical steel plates which pass through the false spars with the hinge connected directly to the main spar, thus relieving the false spar of any strain or stress other than the support of the covering. They are said to be extremely efficient and to respond perfectly and quickly. They are operated by push-pull tubes of steel and it is possible to loosen one complete side and still have the other side left in perfect working order. The tail surfaces are constructed entirely of steel tubing and are externally braced by cables. The control horns are made of streamline tubing welded to the torque tubes. The elevators are controlled by two horns placed 15 in. apart, keeping the control wires out of the way when one lifts the fuselage on the ground. The rudder is large in size and of the balanced type.

Front quarter view of the Bird Wing "Imperial" biplane

The fuselage is constructed entirely of steel tube welded at the joints. The turtle deck is entirely of aluminum. The fuselage is covered with Flightex and finished with orange lacquer. It is built completely in jigs built of channel iron. The side members are built in one jig and the sides are then planed in an assembling jig, and the rest of the parts welded into place, making all fuselages alike. The tail surfaces are built in the same manner, thus parts are interchangeable.

Continued on page 1860

Front view of the Bird Wing "Imperial" powered with an OX-5 engine

Aeronautical Industries Inc.

A New Corporation Formed to Provide the Public with Opportunities to Invest in Sound Aeronautical Enterprises

AERONAUTICAL INDUSTRIES, Inc., has been formed under the laws of Delaware to provide the American public with an opportunity for making a cross-section investment in the aeronautical industry.

A group of technical and financial experts will invest the proceeds received by the Corporation from the sale of this stock, in various domestic and foreign companies engaged in the different branches of the industry, including the manufacture of airplanes, engines, instruments, and accessories, passenger, mail, and express transportation, the development of airports and such other phases of the aeronautical industry as may, from time to time, demonstrate their feasibility.

A complete list of the holdings of the Corporation will be available for inspection at any time by the stockholders. It is not anticipated that dividends will be paid on the stock for some time as obviously the securities which will be held by the corporation represent an industry which is putting its surplus, in a large part back into the business. It is believed by the Company however, that the appreciation in the market price of the shares will be in direct proportion to the growth and development of the industry itself.

Lester D Gardner

The stock is to be placed in a Voting Trust for five years, after which time the Voting Trust Certificates will be exchanged for the actual stock carrying full voting rights, it being the purpose of the Trustees to administer the affairs of the corporation only during the initial period of its development. None of the stock of the company has been given to the organizers or others, but a portion of the Treasury stock has been optioned to the bankers at prices higher than the recent offering price to the public and will be subsequently offered in accordance with the capital requirements of the Company.

Lester D. Gardner, former publisher of AVIATION, is president. The Board of Directors includes the following: C. Everett Bacon, partner Spencer Trask & Co.; Samuel S. Bradley, general manager Aeronautical Chamber of Commerce of America; Benjamin F. Castle, general manager First Federal Foreign Investment Trust; Capt. Charles E. Courtney, C.S.N., supervisor of New York Harbor, formerly president Bergen Paper Co.; Lester D. Gardner, president of the Corporation; Alexander Klemin, Professor of Aeronautics, N. Y. University; Gerald M. Lauck, partner N. W. Ayer & Son; Alexander J. Lindsay, president American Phenix Corp., attorney for the bankers; Louis F. Reed, Reed & Bassford, attorney for the Corporation; Louis W. Stotesbury, capitalist; W. W. Sutton, Jr., vice president W. W. Townsend & Co., Inc.; William W. Townsend, president, W. W. Townsend & Co., Inc.

Mr. Gardner has for many years been actively connected with aeronautics. He founded AVIATION Magazine in 1916 and was its publisher until 1928. He also edited the Aircraft Journal, Who's Who in American Aeronautics and the American Aircraft Directory. He entered military service during the World War as a lieutenant, Air Service, and retired as a major on the Control Board of the Division of Military Aeronautics. In 1926 Major Gardner flew 21,000 mi. over the regular air lines of Europe, Asia and Africa, a record which still stands. In 1927 he was appointed by Secretary Hoover as delegate of the Fourth International Aviation Congress held in Rome. Major Gardner is not only a member of leading American aeronautical organizations, but is the only person who holds membership jointly in the Royal Aero Club of Great Britain, the Aero Club of France, the Aero Club of Germany, and the International League of Aviators.

The company offered 100,000 shares of voting trust certificates for sale to the public on June 5 and by 10 A.M. the bankers, W. W. Townsend & Co. of 7 Wall Street, New York, announced that subscriptions had been received for an amount in excess of the offering.

B. F. Castle

Each share offered at $20.00 carries a detachable warrant entitling the holder to purchase one share of treasury stock at $30.00 a share to and including April 30, 1933.

Mr. Gardner, president of the company, in a statement regarding the plans and policy of the company, said:

"Our ultimate purpose is to provide airplane builders, airline operators, and others in the aeronautical industry with from $10,000,000 to $15,000,000 for expansion of their companies. Four times as many airplanes will be built this year as in 1927. This means that engines and equipment will have to be produced in proportionate numbers. Airlines are increasing every month. Airports, with millions of dollars of service

Continued on page 1856

Blackburn Company of England Brings Out Redesigned "Bluebird" Light Biplane Model

THE BLACKBURN Aeroplane & Motor Co, Ltd, Olympia, Leeds, England, has made a number of changes in the Blackburn "Bluebird" light biplane which is now designated as the "Bluebird Mark II" This folding wing light plane, powered with an Armstrong-Siddely "Genet" 65 hp engine, weighs 1415 lb loaded, including pilot and passenger. The same model has been fitted with twin pontoons and in that condition it weighs 1505 lb.

One of the most interesting features of this design is that it has an open cockpit with dual side-by-side control. The manufacturer claims many advantages for this type of control for instruction purposes. Either right or left control column may be removed when dual control is not desired. However, the dual rudder bars and the central control for the

The "Bluebird Mark II" fitted with pontoons This light biplane is powered with an Armstrong-Siddeley "Genet" 65 hp. engine

engine are fixed All controls operate with cables running over pulleys to horns on the control surfaces.

The wings are of single bay design of wood construction employing a British No 64 airfoil. There is only a slight amount of stagger and a 5 deg sweepback. The internal wing construction consists of spruce bars and built-up ribs, with steel fittings and steel tubes in the highly stressed portions such as the center section. External bracing is with streamline wires The wing is fixed to the fuselage in such a way that it may be easily folded rotating it about the rear spar hinge point.

The fuselage is constructed in two units, the forward part comprises the cockpit, engine mount, and wing supports, and the rear part includes the main structure back to the empennage. The forward portion is built up with spruce spars and three ply bracing members and covering. The rear portion is of normal four longeron struts braced with wires.

Fireproof Bulkhead

The engine mount consists of a duralumin plate box structure secured by four bolts to the forward part of the fuselage and separated from the cockpit by a fireproof bulkhead The engine is a five cylinder air cooled radial of 65 hp weighing approximately 200 lb It has a fuel consumption of close to 4 6 gal per hr An impulse starter is provided as standard equipment The gasoline is carried inside the cowling behind the engine in a 19 gal tank giving sufficient fuel for approximately four hours.

The manufacturer has supplied the following specifications.

Span	28 ft
Length	26 ft 7 in.
Height	9 ft 10 in
Weight empty	831 lb
Weight loaded	1415 lb
High speed	88 m.p.h.
Cruising speed	75 m.p.h.
Landing speed	35 m.p.h.
Rate of climb	400 f.p.m.
Service ceiling	9000 ft.

Weather Bureau for Pacific Coast Aero Reports is Established at Oakland, Calif.

THE UNITED States Weather Bureau at Washington has selected Oakland as headquarters to supply reports on atmospherical conditions on the Pacific Coast and transcontinental air routes to airplanes

Five men form the staff at this office, D W. Little having been appointed superintendent from Washington The latter is already here and has been conferring with airport officials with regard to the new bureau

Oakland was chosen as the logical site for the work by Maj E H Bowie after conferring with local airport officials, Willis Ray Gregg, United States Weather Bureau official at Washington, and T P. Chapman, Department of Commerce officer.

It is planned to establish smaller bureaus at 35 different points on the Pacific Coast, which, of course, will tie in with each other under direction from the Oakland headquarters A code system will be used to signal fliers Plans call for "flag stops" at Medford and Bakersfield This will enable aviators to determine whether or not it is wise to negotiate the Sierra Nevada Mountains from signals from these stations Livermore and Redding have been assigned as "panel stations" These two stations will be able to inform fliers with regard to air conditions in the bay district and help them in crossing the Coast Ranges

Canadian Firm and Atlantic Aircraft Corp. Order Pioneer Earth Inductor Compasses

THE PIONEER Instrument Co of Brooklyn, N Y, has been awarded a contract to supply five Earth Inductor Compasses to the Northern Aerial Minerals Exploration, Ltd., of Winnipeg, Canada, it was announced recently They will be installed on Fokker Universal planes to be used for gold prospecting in the Canadian north These compasses will be vitally essential in view of the fact that more than 1,000,000 sq mi. of virgin territory will be explored and accuracy in navigation is extremely important.

An order for 25 Earth Inductor Compasses has been placed with the Pioneer Instrument Co by the Atlantic Aircraft Corp Delivery of the entire order within a period of one year is expected

Standard Oil Co. of California Will Install Three Additional Airway Beacons on Coast

THREE ADDITIONAL airway beacons for the West Coast are to be installed by the Standard Oil Co. of California The new airway markers will go into operation near San Diego, Portland, and Seattle.

Two beacons of excellent design have already been installed by this company and have proved of great value to night fliers, being visible from the air for 150 mi in clear weather The two now in service are the Standard-Diablo light near San Francisco, and the Standard-Los Angeles light in the Merced Hills of Southern California. These beacons are said to be of 10,000,000 candlepower, are automatically operated, and have their towers designated by neon lighted route markers.

Aeronautica Macchi Completes a New High Speed Seaplane Using 420 Hp. Fiat Engine

AERONAUTICA MACCHI, Varese, Italy, builder of the seaplanes used in Italy in the last few Schneider Trophy races and of the present holder of the world speed record, has completed a high speed flying boat powered with a FIAT 420 hp. engine. This biplane is of exceptionally clean design with a small hull below the lower wing The wings are of single bay design with a pusher engine mounted below the lower surface of the upper wing, which has a cut-out to clear the propeller

Powered with this engine the M-41 is stated to have a high speed of 161 8 m p h., carrying one pilot in the streamlined

Newly completed Macchi M-41 pusher type seaplane said to have a high speed of 161.8 m.p.h.

cockpit in the hull in front of the engine. The landing speed is 59 m.p.h Empty the plane weighs 2428 lb and its useful load is 950 lb, giving a gross weight of 3378 lb The wing loading is 9.82 lb. per sq. ft and the power loading 8.03 lb per hp

Oklahoma Air Transport Begins Expansion With Aim to Offer a State-Wide Service

THE OKLAHOMA Air Transport Co has completed plans for expansion which has been begun with the removal of company headquarters from Norman to Oklahoma City where a state-wide air service has been established with Oklahoma City as its hub.

B S "Cheehie" Graham, president of the company, has announced that a 12 plane hanger will be built on the city field The hangar is to be fireproof and is to cost about $12,000.

This is the first step in the organization of a state-wide service under the direction of one firm. The school for pilots now operated by the company at Norman, where 20 students are now enrolled, will be continued. All state cities of more than 20,000 population will be included in the company's service as soon as pilots can be obtained.

Roy Hunt, vice president and general manager, has left for the East to buy two four and six place cabin planes The company will maintain its agency for the American Eagle, of which it has at present two planes Jimmy Hazlip is the chief pilot of the company and has been doing most of the past flying work. He has carried 11,000 passengers 200,000 miles without an accident

Graham is to assume active management of the firm as soon as the Stadium Union building at the University of Oklahoma is financed He is in charge of this work. Graham's firm is financed by two brothers, oil capitalists.

The plans for the state distributing organization have already been completed and are now under operation making this firm the first and largest of any Oklahoma company engaged in air transport. R L Jones of Bristow is another financial backer of the firm An additional field will soon be opened at Bristow, Graham has announced

Societe Lorraine-Dietrich Develops a New Five Cylinder 100 Hp. Radial Type Engine

THE SOCIETE Lorraine-Dietrich, Argentanil, France, has brought out a five cylinder 100 hp radial engine This engine has been approved by the French Air Force, or, as it is officially known, by the Service Technique et Industriel de l'Aeronautique. The five cylinder design closely resembles the larger Lorraine-Dietrich engines which are used extensively abroad It is a static, radial type with push-rods and valve mechanism in front of the cylinders. On the propeller side of the engines are the magnetos, oil pump, and distributor, while in the rear is the carbureter, gasoline pump, and self-starter distributor, as well as machine gun and tachometer drive

The engine normally develops 100 hp. at 1350 r p m. and at that speed has a specific fuel consumption of approximately .56 lb. per hp per hr The compression ratio is 5 to 1 and the bore and stroke 4.93 by 5.52, giving a displacement of 520 cu in. The total weight of the engine with all accessories is 330 6 lb, giving a specific weight of 3 306 lb per hp

Minnesota Ruling Enables a Bond Issue For Improving Wold-Chamberlain Airport

THE RECENT favorable ruling by the Minnesota Supreme Court regarding a suit to determine the extent of Minneapolis' bond issue power is a decision that is of interest to those connected with the aviation industry in Minneapolis. Through this ruling it will be possible for the city to issue bonds to the extent of $150,000 to secure funds for the purchase and improvement of the Wold-Chamberlain Field and the erection of the necessary buildings on the property

The project had previously been approved by the Board of Estimate and Taxation contingent upon the decision, so now the park board will assume control of the airport for the city in accordance with an agreement with the Snelling Field Corp, owner of the property Space is being assigned to private concerns for the erection of hangars, so before the summer is over this field should be well equipped to store or service any of the present type planes, irrespective of size.

Aero Industries of Minneapolis, Minn., Named Distributor of Pheasant Biplane

AERO INDUSTRIES, Inc, with business offices in the McKnight Building, Minneapolis, Minn, and with operating base at the Wold-Chamberlain Field, is now the distributor in Minnesota and North Dakota of the Pheasant, manufactured by the Pheasant Aircraft Co of Memphis, Mo.

Dealers will be appointed throughout the two states and in addition, the usual activities will be carried on at the municipal airport in Minneapolis. Chief Pilot Fowler of the Pheasant Aircraft Co. flew a plane from the factory to the Wold-Chamberlain Field in three and one-half hours This Pheasant was on display at the Northwest Aircraft Show and is to be used by the Aero Industries in carrying on their work

The officers of this organization are J B Skoratad, president; V. L. Jones, vice president and general manager; G. F Mantz, secretary, R S Dall, treasurer, and Arthur B. Gleasner, chairman of the board of directors.

Evans Glider Clubs of America Organized To Compete for Engineless Flying Trophy

IN ORDER to "stimulate knowledge of and interest in the elementary principles of aviation through the building and flying of glider airplanes," Edward S Evans, Detroit millionaire, general chairman of the Aircraft Events Committee, Detroit Board of Commerce, and co-holder of the Around-the-World Travel record, has announced formation of the Evans Glider Clubs of America, an organization of glider clubs throughout the nation

A trophy, to be known as the E S Evans Glider Trophy, will be competed for annually by members of the Evans Glider Clubs of America who have qualified in city and state elimination contests. The first annual national contest for the Evans Trophy will be held in Detroit in April 1929, during the Second All-American Aircraft Show, the announcement stated City and state contests must be concluded at least 30 days prior to the national meet.

Under the contest rules the Evans Trophy "shall be awarded each year to the club, represented by the entrant who flies the winning model and whose property it is at the time of the National Contest, and this club shall be entitled to possession of the trophy until one month prior to the next contest, at which time the trophy shall be returned to the contest committee of the Evans Glider Clubs of America Suitable bond and guarantee for its proper care and return shall be required from each and every person or organization in whose possession the trophy shall be delivered The trophy will become the permanent possession of any club winning it three times."

Extensive Activity Planned

The organization plans to gain its object by dissemination of newspaper and magazine articles on building and flying gliders, by furnishing specifications and blue prints for building approved models to club members at cost, by operation of a complete question and answer service, free to members and others by presentation of appropriate trophies to winners of club, state and national contests for championship distance and duration glider flights, by organization of glider clubs throughout the United States under the jurisdiction of the current Detroit organization, and by holding a national contest, with the sanction of the National Aeronautic Association, to select national glider champions

Any person may become a member of the Evans Glider Clubs of America upon making proper application Officers of the organization will include an honorary president, a president, several vice-presidents, and a secretary, and will be elected annually by a majority vote of members at the annual meeting, which will be held during the national contest

Aeronautical Show Planned by Milwaukee To be held at State Fair Aug. 27-Sept. 1

PLANS ARE being made by the Milwaukee Association of Commerce and Fred Borcherdt, Jr, business manager of the state fair, for the staging of an aeronautical show at the Wisconsin State Fair, August 27 to September 1 A large building formerly used as a dance hall has been obtained for the show, which has adequate room for the display of 20 planes, as well as propellers, pontoons, engines, and parts. In addition, Borcherdt stated, the air show will supplant the automobile show this year

Mr Borcherdt suggested that the legislature be asked to provide $25,000 to improve the fair field which has been used for a number of years by stunt fliers At the air show an effort will be made to show the construction processes of planes and accessories Plans are also being considered for an exhibit of model airplanes made by men and women as well as by boys and girls, who at present are preparing, under instruction of the school board extension department, for the outdoor model plane flying contest to be held in June at the county airport under the auspices of the air service committee of the association of commerce.

San Leandro, Calif., Planning an Aircraft Show and Aero Institute for September

AN AIRCRAFT show and aeronautical institute is to be staged at San Leandro the middle of September The show will have national significance, and a number of foreign exhibits are assured Sponsored by the San Leandro Chamber of Commerce, the show has the support of the Chambers of Commerce of other bay cities. It has the approval of the Department of Commerce, as well as national aeronautical organizations.

The prime object of the show, according to sponsors, is to give the general public an opportunity for coming in close contact with aviation in all its phases, and to demonstrate the growing importance of the airplane as a commercial carrier Also, to bring the dealers into more intimate relations with their prospective customers The institute is planned as a special educational feature It will include explanatory talks by experts upon the history and development of aviation, insights into its future, and discussions as to the relative safety of flying

The show-institute will follow the termination of the National Air Races at Los Angeles September 17 Both indoor and outdoor entertainment in the aeronautical line will be supplied The exposition tents, to cover several acres, will be located adjacent to the Oakland Municipal Airport

Colonial Air Transport Resumes Passenger Service on Its New York-Boston Mail Line

COLONIAL AIR Transport, Inc, operator of C A M No 1 between New York and Boston, has announced the resumption of passenger service Fairchild cabin monoplanes powered with Whirlwind engines will be used over the route

The northbound plane leaves Hadley Field, New Brunswick, N J, at 6 A M Daylight Saving Time, arrives at Hartford, Conn, at 7 30 A M, and at Boston at 8 30 A M The southbound plane leaves Boston at 7 15 P M Daylight Saving Time and arrives at Hartford at 8 15 P M No passengers will be carried south of Hartford on the southbound planes because that section is flown after dark

The fares are Hadley Field to Boston, $25, and Hartford to Boston, $15 Colonial will also begin regular sightseeing tours over the principal cities of its route.

"New Standard" Plane to be Put Through Test Flights by Gates-Day Aircraft Corp.

THE FIRST of the "New Standard" airplanes will be test flown within a few weeks, according to Charles H. Day, chief engineer of the Gates-Day Aircraft Corp. of Paterson, N J The factory is now being enlarged preperatory to regular production.

Visiting aeronauts expressed interest in the open channel riveted duralumin fuselage and the new Gottingen wing curve The plane is a five place open cockpit design convertible to a two place student or cargo carrying plane. It is to sell at a moderate price, it is said.

Charles H Day designed and was in charge of production of the J-1 Standards during the war

Stultz, Gordon, and Miss Earhart Cross Atlantic in Pontooned Fokker "Friendship"

PILOTED BY Wilmer Stultz, the pontoon equipped trimotored Fokker monoplane "Friendship" flew non-stop across the Atlantic June 17-18, bearing Miss Amelia Earhart, aviatrix, as passenger, and Louis Gordon, as co-pilot and mechanic The flight was made from Trepassey, Newfoundland, to Burry Port, South Wales, England, in 20 hr 40 min Through the success of this flight, Miss Earhart is the first woman to cross the Atlantic by air

The fliers took off from the harbor of Trepassey at 9 51 A.M Sunday, June 17 after the original gasoline load of some 730 gal. was lessened to about 700 in order to subtract from the heavy weight of the monoplane which repeatedly earbed attempts to take off With the smaller load, the three Wright Whirlwinds lifted the Fokker from the surface of the harbor and the flight was under way

According to reports, the fliers saw little sea or land following the first hour out from Newfoundland until they reached the other side Fog, rain, and snow necessitated blind flying during the greater part of the journey. Enough

Wilmer Stultz, who piloted the Fokker, seated in the "Friendship's" cockpit prior to the flight to Wales

gasoline remained to continue the flight to Southampton when the Wales Coast was reached, but the visibility was so poor that landing at Burry Port was considered the best move. The plane was brought down at 6 40 A.M. Monday, June 18, Eastern Standard Time, or 12 40 P M English time.

A number of steamers reported the Friendship en route and two of these communicated with the monoplane by radio, two sets of which were carried by the plane, an emergency outfit being retained for attracting rescue in the event the Fokker was forced down. No serious trouble to menace the flight was encountered, however. As the fuel load lessened, the plane's speed increased; a steady pace of 110 m.p.h was reported near the close of the first day

The Fokker monoplane Friendship, built in Holland, was purchased from Commander Byrd, by George Palmer Putnam of New York, who represented Mrs Frederick Guest, wife of the former British Secretary of State for Air and sponsor of the flight After numerous test flights at Boston, the fliers flew to Trepassey, Newfoundland, June 3-4, and made ready for the crossing of the Atlantic

Robert E. P Elmer, former naval aviation officer, was in charge of the entire outfitting of the Friendship. Two magnetic compasses, an earth inductor compass, drift indicators, and various flares were among the equipment

National Air Tour Entries Total 22 Planes As Detroit Prepares For Take Off June 30

A TOTAL of 22 planes have been officially entered in the 1928 National Air Tour, four additional entries are known, at this writing to be in the mails, and several others are expected to arrive daily, Ray Cooper, manager of aircraft events for the Detroit Board of Commerce, has announced. Although the entry list officially closed Saturday, June 16, Cooper said, late arrivals can be admitted to the entry list with the approval of all entrants.

The list follows:

1—Bellanca monoplane, Billy Brock, Wright J5, Bellanca Aircraft Corp, Wayco Air Service

2—Ford monoplane, 3 Wright J5's, Frank M Hawk, Ford Motor Co, Texas Oil Company.

3—Travel Air biplane, J5, George Meissner, Travel Air Mfg Co.

4—Eaglerock biplane, Menasco Salmson, Benny Howard, Alexander Eaglerock Co

5—Curtiss Robin biplane, OX5, Don R Robertson, Curtiss Robertson Mfg Co

6—Stearman biplane, J5, David P Levy, Stearman Aircraft Company.

7—Buhl Airster, J5, Alger Graham, Buhl Aircraft Co, (Reid-Murdock Company)

8—Buhl Airsedan, J5, Louis Meister, Buhl Aircraft Co.

9—Ryan Brougham, J5, E W. Cleveland, B F Mahoney Aircraft Company, (Cleveland Pneumatic Aerol Co)

10—Ryan Brougham, J5, Al Henley, Mahoney Aircraft Company, Texas-Pacific Coal and Oil Company, Ft. Worth

11—Challenger biplane, Fairchild-Cammez, A H Kreider, Kreider-Reisner Aircraft Company.

12—Eaglerock, Hisso, C P Clevenger, Alexander Eaglerock Company

13—Pinto, Warner, (probably Dr J A Nowicki), Mohawk Aircraft Company.

14—Travel Air biplane, Siemens-Halske, George P Peek, Travel Air Mfg Company.

15—Fleetwing monoplane, two Whirlwinds, C. C Rankel, (Detroit)

16—Ryan Brougham, J5, Vance Breese, Mutual Aircraft Corp. of L A.

17—Swallow biplane, J5, Jay Sadowsky, Swallow Airplane Mfg Company.

18—Waco, J5, John P. Wood, Advance Aircraft Company

19—Waco, J5, Charles W. Myers, Advance Aircraft Company.

20—Stinson biplane, J5, Eddie Stinson, Stinson Aircraft Corporation

21—Stinson, Jr., Warner Scarab, Randolph G Page, Stinson Aircraft Corporation

22—Stinson, Jr., Warner Scarab, Lewis Steward, Stinson Aircraft Corporation.

Elmira, N. Y., Air Meet Featuring Exhibits And Races to be Held June 30 and July 1

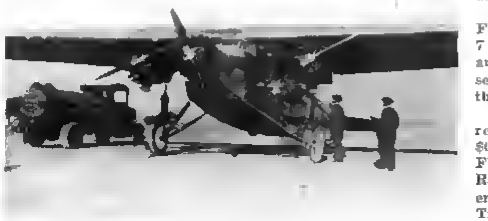
AIRPLANE, ENGINE, and accessory exhibits as well as races for cash prizes will feature the Elmira Airport Air Meet to be held at Elmira, N. Y, June 30 and July 1 According to an announcement, participants will be given gas and oil service, and passenger carrying privileges will be granted to licensed pilots with licensed planes for 20 per cent. of gross receipts Clarence Chamberlin, and a number of Army fliers have signified their intention of attending the air meet

"Southern Cross" Used Micarta Propellers On Recent 7,800 Mi. Oakland-Sydney Flight

THE TRI-ENGINED Fokker plane "Southern Cross", which recently completed its successful trans-Pacific flight from San Francisco to Sydney, Australia, was equipped with Micarta propellers manufactured by the Westinghouse Electric and Manufacturing Co. Reports from members of the plane's crew state that the propellers performed perfectly throughout the 8,000 trying miles of flying over water.

The Southern Cross is the second tri-engined Fokker plane equipped with Micarta propellers that has successfully spanned the 2,400 mi. between San Francisco and the Hawaiian Islands. The first to accomplish this feat was the U. S. Army plane piloted by Lieutenants Maitland and Hegenberger. The Breese monoplane "Aloha", which finished second in the Dole race to Honolulu, also was fitted with a Micarta "prop".

Micarta propellers are manufactured in several sizes and are used on the following engines: Whirlwind J-4; Whirlwind J-4B, Whirlwind J-5, Wright E-2, Wright E-3, Curtiss OX-5, Curtiss C-6, Hispano 150, Hispano 180, Ryan Siemens 9, Hall Scott 8, and Anzani 120 hp.



The Fokker "Southern Cross," showing her three Micarta propellers.

A new feature of all Micarta propellers, which gives them great durability under the most severe flying conditions, is metal tipping. These new metal tipped propellers have successfully passed rigid tests at Wright Field.

The basic material of Micarta is a specially woven cotton fabric impregnated with phenolic resin and consolidated under the combined application of heat and heavy pressure into a product of great mechanical strength. An article concerning the propeller appeared in the Aug. 8, 1927 issue of AVIATION.

To Test Four Cylinder Air Cooled "Dayton Bear" Engine in International F-17 Plane

OFFICIALS OF the International Aircraft Corp., Cincinnati, have announced plans to test a newly perfected engine, the Dayton Bear, with a view to using the power plant in all F-17 Sportsman biplanes. The new engine has four cylinders capable of developing 110 hp. It is air cooled and some 100 lb. lighter, it is said, than the OX-5 type now used in the F-17.

The Dayton Bear is manufactured by the Dayton Airplane Engine Co. of Dayton, O. It will be tested in the International plane by Capt. L. H. McHenry of the Coach Airlines, Seattle. McHenry was in Cincinnati recently awaiting completion of a cabin plane for his company.

Many Closely Contested Races Feature Oregon Aero Club's Portland Air Meet

UPWARDS OF 4000 persons stood out in a rain at the Port of Portland Airport recently to watch the events in the air carnival sponsored by the Aero Club of Oregon to raise funds for financing the visit of the National Air Tour. It was the first air circus to be held on the field since it was thrown open to general use.

Except in one event the meet was hotly contested. Over 30 planes, mostly from Seattle, Vancouver, and Portland were entered.

C. L. Scott, Seattle Flying Service, won the 20 mi. OX-5 stock model plane race for the Philip Jackson trophy and $75 cash. Basil D. Russell, Bush Flying Service, Portland, was second. Both flew Travel Air planes. Maj. A. Eckman, Seattle Airways, was third in a Lincoln-Page.

Gordon E. Monnee, Continental Airways, Portland, took first in the 20 mi. race for Whirlwind cabin planes. The prize was the Airman Special Trophy. Frank Anderline, Rankin Flying Service, Portland, was second. Both flew Ryan cabin monoplanes.

First place in the dead stick landing to a mark went to Floyd Keadel who brought his Eaglerock to within 11 ft. 7 in. of the finish. He won the Valentine Gephart Trophy and $50 cash. Walter E. Case in an American Eagle was second, 15 ft. 7 in., and Jack Parschall, Bus Flying Service, third with an Eaglerock, 21 ft. 2 in.

The Mackenzie-Morrow Aviation Co., Portland, won the relay race for stock model, OX-5 planes for a first prize of $60. Pilots were A. B. Mackenzie and A. W. Davis. Seattle Flying Service was second, Bush Flying Service, third, and Rankin Flying Service, fourth. Walter E. Case, in an American Eagle, won the stunting contest for the Feldenheimer Trophy and $50 cash. Basil Russell in a Travel Air was second, and Tax and Dick Rankin, both in Wacos, were third and fourth, respectively.

The free-for-all for planes of 100 hp. or less was won by Jack Clemence, Aeronautical Pursuits Corp., Portland. Russell was second and Monnee, third. All flew Travel Airs. Clemence was awarded the Harry K. Coffey Trophy.

Capt. Aubrey I. Eagle, commander of Pearson Field, Vancouver, Wash., was chairman of judges.

Further Data Concerning the Equipment Of Trans-Pacific Fokker Southern Cross

THE FOLLOWING information concerning the equipment of the Fokker tri-engined Southern Cross has been supplied by our San Francisco correspondent:

The wheels were special ones built by Sauzedde Corporation of Detroit, and were equipped with Hyatt roller bearings and specially built Goodrich airplane tires made by B. F. Goodrich Rubber Co. The landing gear was equipped with Rusco shock absorber rings, a product of the Russell Manufacturing Co. It was necessary, incidentally, to add extra rings to take care of the heavy load carried by the Southern Cross. The fuel lines were of Flextite tubing. Pioneer instruments were used throughout except for Waltham airplane watches and Waltham watch chronometers, which are made by the Waltham Watch Co. Among the navigational instruments were a Leitz boat compass and a Heath Bubble Sextant. Hiantz-Kauffman of San Francisco built and installed the radio set that kept the entire world constantly informed of the progress of the Southern Cross, and that enabled them to check their bearings. The three engines were Wright Whirlwinds and equipped with Scintilla Magnetos and B.G. Spark plugs.

Last Minute Briefs

Approved type certificates No 43 and No 44 have been assigned to the Simplex "Red Arrow" open two place and closed two place monoplanes. The Simplex Aircraft Corp of Defiance, O, manufactures the Red Arrows.

Air Associates, Inc., of New York will distribute Avro Avian planes powered by Mark II Cirrus engines and equipped with Handley Page slotted wings in New York, New Jersey, Connecticut, and Eastern Pennsylvania. The first two of a 20 plane order will arrive July 10.

C L. Roloson, works manager of the Keystone Aircraft Corp of Bristol, Penna., has been elected vice president of that company.

On July 1 the newly organized Boeing Air Transport Co. will take over the operation of the Transcontinental Air Mail route between Chicago and San Francisco. The new concern is a Boeing Airplane Co. subsidiary.

Agency for Stinson monoplanes has been taken by Tex LaGrone of Kansas City, Mo. LaGrone, also a Waco dealer, sold seven of the latter planes during May, deliveries being made in Missouri, Kansas, and Nebraska.

Royal Airways, Inc., Madison, Wis., has been named agent for Monocoupe planes, 15 of the craft having been ordered for immediate delivery.

The Swallow Airplane Manufacturing Co. of Wichita has sent a specially prepared album of Swallow planes and activity at the plant for display at the 11th International Air Show to be held at the Grand Palais, Paris, June 29-July 15.

Kenneth G. Fraser, former Army Air Corps lieutenant, has been named assistant operations manager of the Huff Daland Dusters, Inc., subsidiary of the Keystone Aircraft Corp. Fraser's duties will embrace supervision of company activity in both the United States and South America.

Two new seaplane altitude records with loads have been established in a second PN-12 Navy flying boat by Lieut. Arthur Gavin. A height of 18,200 ft was attained with 1,000 kg, or about 2,200 lb., and an altitude of more than 12,000 ft was reached with a load of 2,000 kg.

Headquarters of the Bennett Flying School, Kansas City, has been moved from the old Richards Field to the North Kansas City Flying Field.

The recently formed Queen City Air Line Co. of Cincinnati, O., will operate a Ford plane in passenger service to Chicago, Detroit, and Cleveland. Allen R. Joslin organized the concern.

The Kreider-Reisner Aircraft Co. of Hagerstown, Md., will turn over its 60 acre field to the city on July 4. An air circus will be held at that time.

That C. N. Scully has been appointed chief of Pitcairn operations at Hadley Field, New Brunswick, N. J., has been announced by W. Laurence LePage of Pitcairn Aviation, Inc. Hadley Field is the northern terminus of the New York-Atlanta air mail service.

Leaders of the aviation industry are meeting in Boston at the Second New England Aviation Conference, as we go to press.

J. E. Elliott and John Rich, vice presidents of the American Association of Petroleum Geologists, with F. W. Fahrig of Los Angeles are visiting the nation's oil fields flying an International tour place plane.

Charles Rodena of Jackson, Minn., has been named Eagle rock dealer in his district. He recently took delivery on an OX 5 Eaglerock from the Minnesota Aircraft Co.

Members of the Washington Airport Managers Association will meet in Spokane on July 21, timing their convention to coincide with the visit of the National Air Tour.

Carl Schory of the N.A.A. has appointed R. Sanford Saltus, vice president of the Lindington Philadelphia Flying Service, and W. L. Saunders, 2nd, medical book publisher, as official representatives of the F.A.I. in the Philadelphia district.

A sales tour of the Middle West and East in a new Travel Air monoplane has been responsible for 21 plane sales, according to word received at the company factory in Wichita as the plane stopped, en route, in Chicago. Walter Beech, Travel Air president, and O. H. Harned, sales manager, are making the journey.

Marmon Motors, Inc., of Kansas City has taken the dealership for the Monocoupe planes manufactured by Mono-Aircraft, Inc., of Moline, Ill.

Dr. Clarence Potter has been appointed official flight surgeon at Mills Field, San Francisco. He will examine all applicants for aero licenses.

Chief Pilot A. Lewis MacClain of the Boston Airport Corp. has become associated with the Pratt & Whitney Aircraft Co. at Hartford, Conn., as test pilot and engineer.

E. H. Wallis has accepted a position as chief of maintenance for the Boston Airport Corp. Wallis was formerly chief mechanic of the Colonial Air Transport, Inc., at Boston.

A sales and demonstration tour of the Laird Aircraft Co.'s "Whippoorwill" biplane is under way, with Middle Western and Eastern cities on the itinerary. Ewing Brinrly, company test pilot, and Charles Laird, company designer and general manager, are making the trip.

Hangar No. 50 at Curtiss Field, L. I., N. Y., is now occupied by the Albatross Wings Club, Inc. Student instruction is being given on a Stearman powered with a Ryan Siemens.

As we go to press, the new Marshfield, Wis., airport is being dedicated by Governor Zimmerman of that state on June 24.

Articles of incorporation were recently filed in Indianapolis by Louis, Charles, and Suzanne Chevrolet for a new company, the Chevrolet Aircraft Corp. Louis Chevrolet is well famed auto racer.

Following Government approval of its new monoplane, Elgin Airways, Inc., of Elgin, Ill., will begin manufacture of the craft. Clarence W. Helm is president of the company, which has been incorporated with $25,000 capital.

AVIATION offers another service to its readers

Books on aviation regardless of where published may be obtained through AVIATION'S book department.

THE following books* were chosen in an effort to compile a concise list of the best of modern aeronautical publications:

AERODYNAMICS

AERODYNAMICS AND AIRPLANE DESIGN. By Edward P. Warner (588 pages) $ 7.50
Text on aerodynamics and its applications to airplane design, divided into three parts: airfoils and airfoil combinations, performance calculations, maneuverability and stability. 1927 (advanced student)

APPLIED AERODYNAMICS. By Leonard Bairstow (585 pages) $12.00
Theoretical and practical aerodynamics as applied to airplane design. 1920 (advanced)

ANNUALS

AIRCRAFT YEAR BOOK (681 pages) $ 6.25
Published by the Aeronautical Chamber of Commerce. Records the events, records airplanes and data on aircraft manufacturers for 1927. Back issue obtainable.

AMERICAN AIRCRAFT DIRECTORY (170 pages) $ 2.00
Cloth $ 3.00
Directory of the aircraft industry by states and cities. Lists personnel of the various government bureaus, educational institutions, etc. data on aviation competitions and meets; land flying fields and seaplane anchorages. 1928. Revisions published periodically.

JANE'S ALL THE WORLD AIRCRAFT (536 pages) $12.75
Descriptions, photographs, and drawings of airplanes, engines, balloons and airships. 1927

WHO'S WHO IN AMERICAN AERONAUTICS (200 pages approximately) $ 1.25
Names and past activities of everyone associated with the aeronautical industry. 1928

BALLOONS AND AIRSHIPS

AEROSTATICS. By Edward P. Warner (112 pages) $ 3.25
Properties of the atmosphere and airship gases and their effects on free lighter-than-air craft. 1926 (advanced)

AIRSHIP DESIGN. By C. P. Burgess (300 pages) $ 3.00
Structural design and performance of rigid airships. 1927 (advanced student)

PRESSURE AIRSHIPS. By Thomas L. Blakemore and W. Watters Pagon (311 pages) $ 3.00
Design and construction of non-rigid and semi-rigid airships. 1927 (student)

DESIGN AND CONSTRUCTION

AIRPLANE DESIGN AND CONSTRUCTION. By Otterio Pomilio (404 pages) $ 5.00
Design and construction of the aeroplane, performance calculations, and stress analysis. 1919 (advanced)

AIRPLANE STRUCTURES. By Alfred J. Pippard and Laurence J. Pritchard (350 pages) $ 7.50
Airplane structures and stress analysis. 1919 (advanced)

DESIGN OF SCREW PROPELLERS. By Henry C. Watts (340 pages) $ 3.00
Theory, design, and construction of airplane propellers. 1920 (advanced)

MODERN AIRCRAFT. By Victor W. Page (858 pages) $ 5.00
Construction of airplanes and engines with descriptions of modern types. Data on aircraft accessories, airships and balloons, inspection, rigging, etc. 1927 (elementary student)

ENGINES

AIRCRAFT ENGINE INSTRUCTOR. By A. L. Dyke (672 pages) $ 5.25
Handbook on construction, maintenance and repair of aircraft engines, engine accessories and instruments. 1928

AIRCRAFT POWER PLANTS. By Edward T. Jones, Robert Insley, F. W. Caldwell, and Robert F. Kehr (208 pages) $ 4.25
How engines are explained and compared, with practical notes on operating features. Design and construction of propellers, water ballast recovery. 1926 (advanced student)

THE AIRPLANE ENGINE. By Lionel S. Marks (1454 pages) $ 6.00
Theoretical and practical design of aircraft engines. 1922 (advanced)

AIRPLANE ENGINE ENCYCLOPEDIA. By Glenn D. Angle (547 pages) $ 7.50
Descriptions, photographs and drawings of aircraft engines up to 1921.

TESTING OF HIGH SPEED AND INTERNAL COMBUSTION ENGINES. By Arthur W. Judge (1082 pages) $ 7.00
Engine tests, apparatus, methods, and analysis of results with special reference to aircraft engines. 1924 (advanced)

FLYING INSTRUCTION

AEROBATICS. By Horatio Barber (78 pages) $ 2.00
Essential elements of flight instruction and more advanced evolutions such as looping, spinning, etc. Revised edition 1927 (student)

GENERAL

ABC OF FLIGHT. By W. Laurence LePage (141 pages) $ 1.25
Beginner's text on the fundamentals of flight, the airplane, flying instruction and engines. 1928 (elementary)

AIRCRAFT HANDBOOK. By Fred H. Colvin and Henry F. Colvin (464 pages) $ 4.00
Care and rigging of airplanes, maintenance and servicing of engines, instruments, air commerce regulations, construction of airports. Revised edition 1928 (student)

AIRMEN AND AIRCRAFT. By Henry H. Arnold (218 pages) $ 3.50
Non-technical description of modern airplanes and of the instruction courses given in the military services, including accounts of various exploits of the air. 1928 (elementary)

THE AIRPLANE SPEAKS. By Harald Barber (148 pages) $ 3.50
Non-technical description of the airplane and the theory of flight. Revised edition 1927 (elementary)

BOOK OF THE AEROPLANE. By J. Laurance Pritchard (254 pages) $ 5.00
Short history of aviation, theory of the airplane, ground organization and engines. 1926 (elementary)

WINGED DEFENSE. By William Mitchell (262 pages) $ 3.50
The needs and opportunities for the aerial defense of the United States. 1921

INSTRUMENTS, NAVIGATION AND METEOROLOGY

AERONAUTICAL METEOROLOGY. By Willis R. Gregg (144 pages) $ 2.50
Meteorological information supplied in convenient form for the pilot. 1925

AIRCRAFT INSTRUMENTS. By Herbert N. Eaton and others (300 pages) $ 6.00
Theory, construction and operation of modern aircraft instruments. 1920 (advanced student)

LINE OF POSITION BOOK. By P. V. H. Weems (44 pages) $ 4.50
Necessary details for the determination of celestial lines of position. 1928.

PRIMER OF AIR NAVIGATION. By M. E. Wimperis (128 pages) $ 2.00
Navigation of the airplane from ground or astronomical observations. 1920 (elementary)

PRINCIPLES OF AEROGRAPHY. By Alexander McAdie (318 pages) $ 4.00
Text on meteorology including cloud studies, study of the atmosphere, forecasting, water vapor, floods, frosts, etc. 1917 (elementary)

LAW

AIRCRAFT AND COMMERCE IN WAR. By James N. Spaight (111 pages) $ 2.25
Non-technical discussion of international air law. 1920 (elementary)

LAW OF AVIATION. By Roland Pixel (288 pages) $ 7.50
Municipal, state, national, and international aeronautic law. Operations, insurance, patents, etc. 1927

MATERIALS

METALLURGY OF ALUMINUM AND ALUMINUM ALLOYS. By Robert J. Anderson (911 pages) $10.00
Mining, production, metallurgy, physical properties, corrosion, sheet treatment, and fabrication of aluminum and its alloys. 1925 (advanced)

MODEL AIRPLANES

BOY'S BOOK OF MODEL AEROPLANES. By Francis A. Collins (308 pages) $ 2.00
How to build and fly model airplanes. 1921 (elementary)

NARRATIVE

EUROPEAN SKYWAYS. By Lowell Thomas (324 pages) $ 5.00
A 25,000 mile air trip over Europe. 1927

FIRST WORLD FLIGHT. By Lowell Thomas (328 pages) $ 5.00
The U. S. Army world flight as related to the author by Lieutenants Smith, Wade, Herding, Nelson, Arnold, and Ogden. 1928

RECORD FLIGHTS. By Clarence Chamberlin (350 pages) $ 3.00
The author's experiences in the air including his trans-Atlantic flight. 1928

SKYWARD. By Richard E. Byrd (359 pages) $ 7.50
Early training, later experiences, and long flights of the author. 1928

WAR BIRDS (277 pages) $ 2.00
Diary of an unknown aviator at the front. W. E. By Charles A. Lindbergh (318 pages) $ 2.50
Flying experiences of the author. 1927

OPERATIONS

AIRPORTS AND AIRWAYS. By Donald Duke (178 pages) $ 3.00
Airport location and construction; airport publicity; airways and aids to aerial navigation. 1927

TRANSPORT AVIATION. By Archibald Black (248 pages) $ 3.00
An analysis of commercial aviation and its possibilities. 1926

PHOTOGRAPHY

AERIAL PHOTOGRAPHS. By Dacho M. Rooves (307 pages) $ 3.00
Study on military application of aerial photographs. 1928 (student)

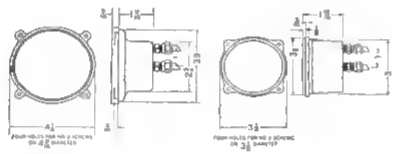
AIRPLANE PHOTOGRAPHY. By Herbert E. Ives (242 pages) $ 4.00
The airplane camera, photography, developing and printing. 1920

Prices include postage to points in the United States. Books may be sent C.O.D.

Book Department
Aviation Publishing Corporation
250 W. 57th Street, New York, N. Y.

Navy Aero Bureau Tentatively Adopts New Standard Size for Aircraft Instruments

THE BUREAU of Aeronautics Navy Department, has tentatively adopted a new standard size for aircraft instruments All diameters are approximately one inch smaller than the old standard, the dial being 2¾ in. and the maximum case diameter 3¼ in. A comparison of the old and new standards may be made from the accompanying drawing in which both cases are shown to the same scale The saving in instrument board area is about 40 per cent.



Showing how the old and new sizes compare

While it is hoped to extend the new standard dimensions to include the altimeter and tachometer, the only instruments already tested and approved are air speed indicators, which were supplied by the Pioneer Instrument Co, Brooklyn N Y, which cooperated with the Navy Department in this work

Air speed indicators of the new size were publicly displayed for the first time at the Detroit Show in April, and the Pioneer company has recently announced that it is now prepared to supply these instruments for commercial use

The new 0-140 mi Pioneer Airspeed Indicator This illustration is a full size reproduction

Standard ranges are 0-120, 0-140, 0-160, 0-250, and 0-350 m.p.h., 0-160 and 0-260 knots, and 0 250 and 0-400 k.p.h

The reproduction of the new 0-140 mile Pioneer Air Speed Indicator is full size, showing clearly the ease with which this instrument may be read, in spite of the reduced size.

Velie, Floco, and Menasco-Salmson Engines Are Scheduled for Certification Tests

THREE RADIAL air cooled engines are scheduled for certification tests under the Air Commerce Regulations at the laboratory of the Bureau of Standards in the next two months. They are Velie five cylinder of Moline, Ill., Floco seven cylinder of Los Angeles, and Menasco-Salmson nine cylinder of Beverly Hills, Calif.

The Bureau recently has just completed tests of the Warner seven cylinder of Detroit, the Kinner five cylinder of Glendale, Calif., the Comet seven cylinder of Oakland, and the Szekely three cylinder of Holland, Mich

At present the Bureau runs its tests of the air cooled engines by mounting them on torque stands, attaching a suitably designed propeller to absorb the power and providing an blasts to cool the cylinders. As soon as the necessary equipment can be installed, these tests will be made with an electric dynamometer to absorb the power and an 80 hp blower to supply the high velocity air stream required to cool the engine.

Before the new engine is accepted for tests it must have been run by the manufacturer for at least 25 hr., and a log of this run must be submitted with the engine The department's present test requirements include three points- a 50 hr endurance test to be run in 10 five hour periods, full throttle runs to determine the power developed at speeds ranging from 75 to 110 per cent of normal speed and lastly an actual service test of the engine in an airplane.

Each power plant is considered on its own merit and there are no standard requirements as to weight per horsepower, fuel consumption per horsepower-hour, or oil consumption per horsepower hour Sound design, adequate material, good workmanship, and reliable performance of the engine and its accessories are demanded. In accordance with Army and Navy practice, the endurance test consists of nine periods (45 hr.) at rated speed and load and one period of five hours at 10 per cent overload.

Although the testing of commercial airplane engines has only recently been undertaken, the automotive section of the bureau has been studying the performance of aircraft power plants for over 10 yr. As early as 1913 an electric dynamometer was installed at the bureau and tests were made on two Renault airplane engines for the Signal Corps of the United States Army By 1917 the addition of a 400 hp. dynamometer had provided for the laboratory testing of the most powerful aircraft engines then known, and torque stands were installed for running service and endurance tests of all sizes and types of engines The first experimental Liberty engine was delivered at the Bureau on July 3, 1917, just 21 days after its design was approved, and was tested both on the dynamometer and on the torque stand This engine is now on exhibition at the Smithsonian Institution

Jack Rose of Mamer Service Takes First In Spokane-Yakima OX-5 Race Flying Waco

JACK ROSE, pilot with the Mamer Flying Service, flew his Waco 10 to first place in the Spokane-Yakima OX-5 race recently The flight of 150 mi required 2 hr and 30 min. as the four competitors from Spokane hacked heavy headwinds. Ed Bigelow, Spokane, Inland Eaglerock pilot, flew his plane to second place, and Maurice McMeachen of Yakima took third in an Eaglerock Several planes from the national guard unit in Spokane made the trip to aid in dedication of the new Yakima Airport.

"Super-Mailwing" Biplane With Great Mail Capacity Being Built by Pitcairn Company

HAROLD F PITCAIRN, president of Pitcairn Aviation, Inc, Philadelphia, has announced the completion of designs and the starting of construction on a larger model Pitcairn plane It will be known as the "Super-Mailwing" and has been designed to meet the demand for mail planes with sufficient cargo capacity to carry the increasing air mail loads.

The mail compartment of the new plane will have nearly twice the cubic capacity of the present Mailwings. The first Mailwing was designed slightly more than a year ago, at a time when the volume of air mail was far less than at present It was one of the first planes designed especially for carrying mail Since that time, the Pitcairn Mailwing has been adopted for use on six contract air mail routes.

The new plane will be similar in design to the present Mailwing. The wing area will be the same and a Wright Whirlwind J-5 engine will be the standard power plant installation The fuselage has been lengthened to provide for a mail compartment of 40 cu ft. instead of 21½, making room for the 500 lb of mail which the plane can easily carry

The new plane will have a gasoline capacity of 75 gal. instead of the 56 gal capacity of the Pitcairn Mailwings The oil capacity also has been increased from 5½ to 8½ gal

Several new features will be incorporated The pilot's seat will be adjustable in flight so that he can raise it for better visibility while landing or taking off, and lower it for protection from the wind while cruising The tail skid installation has been improved by substituting rubber compression discs for shock absorber cords, thereby reducing maintenance.

The landing gear, while similar to the split type used on the Mailwing, will be refined in details to reduce parasite resistance and will be so designed that shock absorbers and brake wheels of well known manufacturers will be interchangeable

The Pitcairn organization has announced that no statement of the performance figures of the new plane will be made until it is tested in the air, but it is expected that even with the doubled cubic capacity the performance of the present Pitcairn Mailwing will be retained

Despite the fact that the new plane will have nearly twice as much room for mail, and extra gasoline and oil capacity, the weight of the Super-Mailwing empty will be, it is understood, only 65 lb. heavier than the present Mailwing.

Wisconsin's Second Commercial Airplane Tour Closes as 30 Planes Visit 22 Cities

THE SECOND commercial airplane tour of Wisconsin, sponsored by members of the Alonzo Cudworth Post of the American Legion, took place the week of June 11-16 It was one of the most successful of tours, according to John H. Nichols, general chairman Thirty planes visited 22 cities bearing representatives of various commercial enterprises of the state of Wisconsin, Minnesota, and Illinois cities.

The journey started from the Milwaukee Airport Monday morning, June 11, the fliers returning Saturday, June 16, for a windup dinner at the Hotel Plankington, Milwaukee More than five hundred people attended the banquet.

The itinerary of the tour follows: Sheboygan, Manitowoc, Oshkosh, Marinette, Green Bay, Appleton, Portage, Stevens Point, Wausau, Eau Claire, St. Paul, Minn; Owatonna, Minn; Rochester, Minn, La Crosse, Madison, Monroe, Moline, Ill, Beloit, Rockford, Ill, Janesville, Kenosha, and Racine

Hartford and Waterbury Aero Clubs Tie For First in Hartford, Conn., Air Meet

AN AIR meet was held at Brainard Field, Hartford, Conn, recently under the auspices of the New England Aeronautical Societies, an organization of which Gov. John H Trumbull is head. The meet was of a private nature, only planes owned by members of the association being eligible for the competition.

The Aero Club of Hertford tied for first honors with the Waterbury Light Plane Club The others who took part were: Worcester Society for the Promotion of Aviation, Connecticut Flying Club, and the Flying Club of Worcester, Mass.

The meet was under the supervision of a committee including Dr. James Piggott of the Yale Aeronautical Society, Andrew Ivanoff of the M.I.T. Flying Club, and James F Whittall of the Worcester Society for the Promotion of Aviation.

Following the meet, a dinner was held at Hotel Bond, where addresses were given by Capt. Paul Roehre, Maj. Virgine Chappelle, president of the Greater Brooklyn Flying Club and vice president of the American Motorless Aviation Club, Dr Paul Laubenthal, and Peter Hesselbach. Captain Roehre, Dr. Laubenthal, and Mr Hesselbach are representing the Motorless Aviation Club of Germany.

National Airway Terminals Changes Name To "Continental Airway Terminals, Inc."

H. C. FERGUSON, general manager of National Airway Terminals, Inc., of 292 Madison Ave., New York, announces that the name of the company has been changed to Continental Airway Terminals, Inc The change is occasioned by the similarity of the initial letters—N A T —to those of the National Air Transport, Inc. Since aviation companies are many times referred to by initials, confusion arose.

Production of New Quick Powered Biplane Is Begun by Swift Aircraft Co. of Wichita

FULL ORGANIZATION and plans of the Swift Aircraft Co of Wichita are announced by officials of the company and production on a big scale has begun Plans call for two new buildings, making five units to the plant with 14,000 ft. of floor space and a production capacity of 6 plane a day.

After weeks of experimenting with the first model, a two place biplane, said to have developed one of the fastest speeds in the commercial biplane class, 10 planes were started through the factory

Together with the construction of the new buildings, plans were made for a good landing field on the company's property. North and south and east and west runways of 1,200 ft. each are being laid out.

Tests on the Swift plane were made by Howard Jones, former Army pilot. Though no time trials were made, Jones estimated that the Swift plane attained approximately 140 m p h The plane is also said to have a low landing speed.

The craft is powered with a Quick nine cylinder, 120 hp. converted LeRhone engine. It has a 25 ft. wing span and carries 30 gal. of gasoline in the upper wing. The fuselage is of all metal construction and painted a deep brown, in contrast to the bright red wings of wood and fabric construction.

W. E Ritchie, oil operator, is president; Walt Anderson is vice president, Robert H Richards is secretary, and V. G Cobb has been named director

Success of New Variable Pitch Propeller Indicated by British Company's Experiments

IN CHELTENHAM, England, the Gloster Aircraft Co., Ltd., has been experimenting for some time with a variable pitch propeller developed by H. S. Hele-Shaw and T. E. Beacham. The advantages of the variable pitch propeller are apparent, and a successful device of this kind has been the object of much experimentation and investigation. According to the Gloster Aircraft Co., the Hele-Shaw-Beacham propeller has successfully overcome the difficulties encountered, which were usually due to a misunderstanding of the magnitude of the forces required to effect a variation in pitch, or how to reduce the bulk of the mechanism. It is claimed that the Gloster propeller does not increase the weight unduly and is very simple in operation. It is stated that the pilot can set the gear by means of the control wheel so that the speed of the engine will remain constant regardless of the load, the blades of the propeller adjusting themselves automatically.

The power required for the work is derived from the engine and transmitted hydraulically to the propeller. Each blade is provided with a crank arm connected to a fixed piston in a hydraulic cylinder. The piston divides the cylinder into two chambers and a pipe from each cylinder connects to a variable stroke pump driven by the engine and controlled by a centrifugal governor also geared to the engine. A special feature of the pump is that the flow can be reversed by a considerable adjustment of the stroke, hence when one of the chambers is under pressure, the other is under suction. At normal speeds the governor, through a link mechanism, sets the pump stroke rod at its mid position and there is no delivery from the pump. Should an increase of engine speed take place, this will entail an alteration of the governor position, which correspondingly modifies the stroke of the pump, causing oil to be delivered to that side of the main cylinder which increases the pitch. The pitch increase is accompanied by an increase of propeller torque which slows down the engine speed to its normal value. A reduction in engine speed has the reverse effect. Thus any tendency of the engine to vary in speed is rectified by a corresponding variation in pitch, the effect of which is to maintain a constant engine speed.

By adjusting the position of the floating link connecting the governor to the pump, the normal speed of the engine can be set at any desired value. This is easily carried out, since the load on the link is quite small in spite of the fact that a considerable pressure may exist in the pump. The by-pass is arranged in the cylinder so that excessive pressures will not be built up.

Aeronautical Industries, Inc.

Continued from page 1843

equipment, are being constructed. It is to meet these requirements that a group of experts in aeronautics, finance and management have formed this new company.

"Four important occurrences brought to the public its first realization of the investment opportunities that existed in aviation. Henry Ford entered the field as an airplane builder and airline operator. This marked the turning point. Capital that had hitherto been skeptical, realized that this industry that Ford had investigated and found attractive deserved consideration. The Government decided to foster and regulate commercial aviation and under the direction of Secretary Hoover the Department of Commerce has created a new confidence in the safety of aircraft. The air mail was given over to private operators of airplanes and a network of air mail lines was laid over the United States in a comprehensive and well planned system. And then came Lindbergh. What had been prosaic became suddenly romantic. The public that had been cautious and uncertain was changed to an enthusiastic and credulous group eagerly following every aircraft achievement. Byrd, Chamberlin, and a hundred others kept the public amazed with one aeronautical triumph after another. But the public did not stop there. It opened its purse strings and poured money into every conceivable aeronautical venture. Capitalists led the way but non were followed by the smaller investor and speculator.

"To secure banking support, certain financial elements are necessary. Primarily, a record of earnings over a period of years is a fundamental requisite. This requirement was impossible to meet by practically every airplane company, and expansion programs had to be financed privately. But the public took matters into its own hands and without the usual formality of having securities vouched for by bankers, commenced a speculative investment campaign that has been one of the outstanding phenomena in recent financial experiences.

"New offerings of aeronautical stocks are being made almost daily and unless some stabilizing influence is brought to bear, there is a danger of history repeating itself and the optimism of thousands of investors being subjected to unnecessary losses. In an industry as new as this, there is the utmost difficulty in securing reliable information. Even when this is available, it requires experts with experience in the field of aeronautics to analyze and value the many factors that must be present to make a successful enterprise. The comparatively few experts who, through long experience, can detect weaknesses, distinguish between hopes and perfor-

Alexander Klemin

mance, determine values and recognize ability, are unavailable to the average investor. When personal advice and counsel are given they hesitate to disclose opportunities until it is too late to profit by preliminary investment. Thousands of people are confronted with this problem. They are asking—Where can I get advice? How can I take advantage of the great opportunities aviation offers? Must I take a chance?"

"During the past ten years the 'investment trust' idea has been applied to many fields. It has been almost uniformly successful and brought great rewards to investors. The principle of diversification of investment directed by experienced managers has been demonstrated as the soundest method of financial procedure. But it is too early yet to apply the fullest operation of this idea to aviation. The securities of the aeronautical industry have not had sufficient time to become 'seasoned'. The capital requirements for expansion

and promotion are not only absorbing earnings but are making refinancing necessary in practically every unit of this growing industry. 'Plowing back' earnings into new buildings, new machinery, inventories and working capital will make the immediate returns on invested capital comparatively small. But to those who wish to share in the capital gains that are to be made during the next few years, the plan of group investing offers almost unlimited possibilities.

"To secure the maximum of benefit from the 'group investment' plan, experienced direction is required. The aeronautical field is so broad that a specialist in one branch may be entirely uninformed of the possibilities in other directions. A board of managers of an investment fund must consider every possible investment field in the aeronautical industry based on judgment acquired from long personal contact with aviation development. A statistical organization must be created to secure every available fact which may have any bearing on the trend of aerial progress. Not only must this analysis of the record of each individual company be made but the market for aeronautical equipment must be constantly investigated. The flow and direction of orders must be followed. The ability of individuals engaged in the industry should be constantly under the closest scrutiny. This plan is only possible when investors act together. The expense of securing such expert opinion, preparing engineering reports, and maintaining a continuous statistical contact with the entire field is too great for any individual. Only by a pooling of interests can the largest use be made of these advantages.

Samuel S. Bradley

"Equally important is the necessity for impartial judgment. It has been the aim of Aeronautical Industries, Inc., to secure as officers and directors men who, through experience in aeronautics, finance, and industry, have no affiliations that would tend to warp their judgment. But even expert management based on exhaustive research does not satisfy the modern requirement of diversification.

"The scope of the aeronautical industry is much broader than even the railroad, shipping, or motor fields. It not only includes the manufacture of a wide range of aeronautical equipment but its operation and maintenance. Locomotive builders and automobile manufacturers do not operate railroads or bus lines, but aircraft builders such as Ford, Wright, Curtiss, Boeing, and Pitcairn not only build but operate airplanes. In fact, the specialization of aeronautics has reached a point where every phase of the industry included in one large unit. It is obvious that to secure the greatest return on investments as well as to secure the greatest safety, a spreading over the whole field is advantageous. Individuals would find this diversification difficult, if not impossible. Only when sufficient amounts of capital to warrant thorough investigation are available, can this spread of diversification be secured.

"The opportunities for investment are often much more favorable in smaller companies than in those whose securities are known to the public. Their requirements are smaller and they are willing, when in need of funds for expansion, for a single investor to secure all the reward. Such companies do not make their financial operations public and, therefore, it is only through searching that such opportunities can be found.

"The advance of aviation is world-wide. Every civilized country is creating a substantial aircraft industry, encouraging airlines, and strengthening its air forces. The requirements for expansion of foreign aircraft companies are as pressing as those in the United States. The investment opportunities abroad are just as great as in the United States, but require careful investigation and expert knowledge of conditions.

"Aeronautical Industries, Inc. proposes to furnish the pioneer investment fund of the expansion of aviation; to provide the most expert direction that it is possible to secure; to explore the entire field of aeronautical investment; to maintain contact with the growth of the aeronautical industry, and through diversification secure for its stockholders the maximum of safety and possibility of profits."

All applications for investments by the Aeronautical Industries, Inc. should be made in writing. Personal interviews with officials of the corporation will not advance negotiations. Applications from middlemen will not be received until the whole aeronautical industry has been informed as to the purpose of the fund. Proposals should be made directly by an officer of a company or authorized principal. It is the broad policy of Aeronautical Industries, Inc. to invest its funds only in companies that have been in operation for several years. However, this is not a final ruling and new projects, when submitted in writing, will receive careful attention. After proposals have been passed on from the technical, financial, and business standpoints, applicants may have an opportunity to present, personally, further facts regarding their company's activities.

Information Desired

1. History of the business
2. Description of plant or other property, including location, condition, capacity, etc.
3. Organization and personnel with their business records.
4. Description of products with patent protection.
5. Methods of doing business.
6. Latest available balance sheet.
7. Operating statements for past two or three years.
8. Record of production by units with sales record.
9. Inventories carried, showing finished product and material in progress of manufacture. Give values at cost or market, whichever is lower.
10. Previous financing—sale of stock—loans—mortgages.
11. Complete statement of notes receivable, accounts receivable and goods pledged to secure indebtedness.
12. Insurance position.
13. Depreciation and obsolescence allowances.
14. Policy as to disposition of earnings of the business.
15. Obligation under leases.
16. Additional construction or capital expenditures planned.
17. Loans to or from officers.
18. Other business interests of owners or officers.
19. Relationship to subsidiary or affiliated companies.
20. Unfilled orders.
21. Local labor condition.
22. Seasonable nature of business.
23. Government orders, past or in prospect.

24 Statement of the future prospects of the business, with reasons for hopes.

Two copies of the application should be sent by registered mail to Lester D. Gardner, President, Aeronautical Industries, Inc., 292 Madison Avenue, New York City, marked "Confidential" Any information contained in the applications will be held in confidence, as is customary with banks, and returned, if requested, to the applicant if no investment is made.

The Bird Wing "Imperial"

Continued from page 1842

The passengers' seat is built of sheet aluminum and is suspended in the fuselage in a strong and substantial manner The seat is 34 in. wide and there is plenty of leg room, allowing space for two suit cases. The front cockpit is upholstered in imitation leather The pilot's cockpit is equipped with all instruments and controls in plain view and within reach of the pilot. The pilot's seat is constructed of plywood bottom and sheet aluminum sides, and has a cushion of imitation leather The wind shields are of 0.1 in Pyralin sheeting In the front cockpit there is a door in the left side of

Close up view of the nose of the Bird Wing "Imperial" plane

the fuselage, making it easily accessible for passengers The flooring for both cockpits is one piece of three ply mahogany.

The controls are dual and the stick in the front cockpit is easily removed by two bolts. All of the fuselage control parts are in plain sight for inspection and oiling and are fully safetied from failure. The ailerons are operated by a bell crank on the torque tube which is welded to the torque.

The Bird Wing Imperial is designed to use any engine from 90 to 200 hp The engine mount is detachable and is constructed entirely of welded steel tubing It is readily accessible, as all of the cowling can be quickly removed by pulling out the hard wire pins The cowling has a pleasing line and the hood is hinged at the middle like that on an automobile, making both top sides of the engine accessible for inspection, oiling, etc. The hood can be removed entirely by loosening four hood hooks and lifting off There is another good point about the cowling, and that is there is no bumping required to form round parts. The gasoline tank is of large size, holding 34.5 gal in the OX-5 model, and is suspended from the longerons on steel straps with a tank

handle on each strap The gasoline line is of copper tubing, to the front side of the steel fire wall. From the front side of the fire wall the gasoline line continues to the carburetor housed in a cloth gasoline hose At the carburetor a special gasoline strainer is installed to stop any dirt that may have gotten through the strainer built in the gas tank A Pyrene fire extinguisher is standard equipment on all Bird Wing planes, and the choice of Hamilton or Hartzell propellers is allowed Shatters for the radiator are provided.

The undercarriage is constructed of welded streamline steel tubing hinged to the fuselage by 7/16 in. nickel steel pins. It is divided type The wheels are of D H. type and are exceptionally strong and durable Brakes can be had at a slight additional cost. Either Goodrich or Goodyear tires are supplied The shock absorber is of ½ in. rubber cord Edo pontoons can be readily attached to the fuselage.

The specifications of the Bird Wing Imperial, as supplied by the manufacturer, are as follows:

Length overall	23 ft 6 in
Height overall	8 ft 7 in
Airfoil (wing section)	Aeromarine 2
Span, each wing	31 ft 4 in
Chord, each wing	63 in
Gap	5 ft. 3 in.
Stagger	11 in.
Total wing area	303.5 sq. ft.
Ailerons area	8 1/6 sq. ft. each
Area of horizontal stabilizer	19 sq. ft
Area of elevators	16.4 sq. ft.
Area of fin	3 sq. ft
Area of rudder	13 sq. ft.
Weight empty	1236 lb
Pay load	550 lb
Disposable load	217.35 lb
Gross weight loaded	2255.35 lb
Power plant	90 hp OX-5
Wing loading	6.95 lb /sq. ft
High speed	90 m.p.h
Cruising speed	75 m.p.h. at 1350 r.p.m
Landing speed	30 m.p.h
Take off run (still air)	250 ft
Climb at sea level	460 f.p.m.
Climb to 5,000 ft	25 min
Service ceiling	10,000 ft
Absolute ceiling	14,000 ft.
Gasoline consumption at cruising speed	7⅞ gal /hr
Gasoline capacity	34.5 gal.
Endurance at cruising speed	4 hr

Assembly Methods in the Stearman Factory

Continued from page 1841

welding department Also, on a parallel line is the tail surface welding line. Before meeting on the final assembly floor the tail surface units and the fuselage visit the dope room, across the floor, but their paths do not cross the path of the wings in their march to the dope room In the northwest corner of the building is the sheet metal department where the cowling, doors, instrument boards, etc., are constructed. The cowling is constructed over a dummy fuselage.

When the final assembly is made the workmen who constructed the cowling, place it upon the plane and fit it, since the nose of the plane in final assembly is close to the cowling department From the final assembly line, the fuselage is run into hangars, which are just north of the building, and there the wings are hung and the plane is ready for testing

In no case is it necessary to move the materials or the finished parts more than a few feet at a time, according to Mr. Short. This makes it possible to accomplish about twice as much work with the same number of men as would be possible if the various construction units were located in separate buildings and the materials were transferred from one building to another in the fabrication processes.

From a fire hazard standpoint, the dope department is the only menace. However, this is reduced to a minimum by the use of suction fans and by placing the welding department at a considerable distance from the dope. To confine the dope fumes into a minimum space, the department is covered with a canopy 40 ft. long, extending out from the wall 10 ft. and sloping downward from the front top edge,

Front quarter view of a Stearman Biplane powered with a "Whirlwind" engine

which is 14 ft. above the floor, to the wall, striking the wall at 10 ft. The sides angle in, so that the whole canopy appears as a cone in the end of which are the suction fans, set as low to the floor as it is possible to place them. When lacquers are sprayed on the materials, the direction of the spray is toward the rear of the cone.

The fuselage frame goes to the dope room for exterior finish of aluminum lacquer before it is covered with fabric, which is done in a section adjacent to the dope department. Previous to painting the frame is given an interior wash of linseed oil.

The work is done in units of ten. And, theoretically wing construction begins simultaneously with fuselage construction and they are completed at the same time. In actual practice, however, there may be an hour's difference one way or another in the construction of the frame and wings of a single plane. In the sub-assemblies, however, there usually are several units ahead, for the same men who construct the tail skid sub assemblies construct the stick assemblies and must of necessity construct several units of each at a time.

An interesting feature of the "wedding" of the wings and the fuselage is contained in a huge rack on rollers which bears the wings, rudder, and other wing material for the rigging of one plane. The materials are placed on the rack as they leave the paint department, and the rack, with its burden, follows through to the hangar with the fuselage.

News Notes of the Detroit Air-Olympics

Continued from page 1840

The aeronautical section of the Chicago A. S. M. E. has notified the aircraft events committee that Chicago will send from 50 to 100 delegates to the national meet. Many of them will fly to Detroit, it was said.

Anyone in the United States, desiring to attend the De-

...olympics can get a special railroad rate of a fare ... (full fare to Detroit and half fare home) by purchasing tickets in the name of the A. S. M. E., or the Model League of America. Certificates must be ... the ticket purchaser for presentation to ticket ... Detroit before buying the return fare. Unless these ... are presented the special rate will not be granted.

The Detroit City Council recently passed a resolution ... the Aircraft Events of the Board of Commerce ... use of city owned chairs and benches, capable of seating approximately 4,000 persons at the Detroit Air Olympics. The seats, the property of the Department of Parks and Boulevards, will set out on the airport sidelines for the benefit of those persons who desire to remain at the airport throughout the day. A charge of $1 will be asked for the seat and arrangements will be made whereby the seat holder will be at liberty to leave his seat, walk about the field at will and return. Funds taken in by sale of the seats will go toward defraying expenses of staging the giant show. No admission will be charged at the airport gate.

Edsel Ford Named Starter

Officials of the Gordon Bennett race have been named and are as follows: Starter: Edsel B. Ford. Assistant starter: Col. Phelps Newberry. Timer: Ralph Upson (1913 winner of the classic). Referee: Gen. Frank P. Lahm, Jr., (winner of the first race in 1908). Judges will be Wilhem P. MacCracken, Edward P. Warner, and Admiral W. A. Moffett. Ford and Newberry will also act as starters on the Air Tour.

Arrangements are under way to have Edward J. Hill and Arthur G. Schlosser of the Aircraft Development Corp., winners of last year's Gordon Bennett race, take off in a 35,000 cu. ft. bag in advance of the international race entries, in order to give the entrants a working knowledge of air conditions. Norman B. Conger, Detroit government weather expert and a member of the balloon race committee, will furnish the entrants with fullest details of what they might expect in weather conditions.

Besides the National Air Tour and the Gordon Bennett Race other features on the program of the Detroit Air-Olympics include the Boys' National Model Airplane Contest, an interesting demonstration of gliding by three German gliding experts now in America, and military maneuvers by members of the First Pursuit Group, Selfridge Field.

The Wright "Cyclone" Engine

Continued from page 1839

Stroke	6.875 in.
Piston displacement	750 cu. in.
Compression ratio	5 to 1
Normal speed	1900 r.p.m.
Brake horsepower at sea level and at normal r.p.m. with aviation gasoline	540 b.hp.
Direction of rotation of crankshaft, looking at propeller end of engine	counter clockwise
Average weight of engine	760 lb.
Center of gravity, distance forward of rear face of mounting bosses on center line of crankshaft (without propeller hub)	5.95 in.
Diameter of mounting-bolt circle	23⅝ in.
Number of mounting bolts	9
Size of mounting bolts	7/16 in. dia.
Overall dimensions:	
Length approximately	40⅝ in.
Diameter	53 15/16 in.
Mounting plate forward, approximately	27⅞ in.

FOREIGN NEWS

By Special Arrangement with the Transportation Division Bureau of Foreign and Domestic Commerce

Report Canadian Air Mail Contract Awards

Canadian air mail contracts have been awarded by the Post Office Department of the Government, as follows: Canadian Transcontinental Airways, Ltd.,—Montreal-Rimouski, four single trips per week; 120 trips per season. Canadian Transcontinental Airways, Ltd., Montreal Ottawa, two single trips per week; 60 single trips per season. Canadian Airways, Ltd., Montreal-Toronto, four single trips per week, 120 single trips per season. The rate being paid to each of the above companies is $1.25 per flying mile, which makes the cost per trip between Montreal and Rimouski $412.50, between Montreal and Ottawa, $137.50, and between Montreal and Toronto, $412.50. Montreal is equally distant from Toronto and Rimouski. The annual cost of the Montreal-Rimouski and the Montreal-Toronto services will be $49,500, and of the Montreal-Ottawa service, $8,250. Arrangements have been made with the Canadian Colonial Airways, Ltd., for a year-aronnd air mail service between Montreal and Albany, N. Y. The maximum cost per annum is to be $93,900.

Australian Company Reports April Service

The following report has been issued by the Australian Aerial Services, Ltd., at Melbourne Aerodrome, covering activity during April:

Total mileage flown since inception of service	579,016
Total miles flown during April	12,581
Percentage of arrivals within 30 min. of schedule time	87.5 %
Schedule flights completed since 11/11/24	100 %
Number of fatal accidents since inception of service in 1924	Nil
Average speed including intermediate stops	66 m.p.h.

In addition to the usual scheduled aerial mail flights, Australian Aerial Services report that during April several Tenplanes were chartered.

During the month a consignment of wireless sets was flown to Mildura and two live kangaroos were landed at Melbourne from Daniliqain. The company's freight list has lately included white mice, bees, fresh flowers, and fruit.

Supermarine Southamptons Reach Australia

Four Royal Air Force Supermarine "Southampton" flying boats have landed in Australia, having completed 14,000 mi. of their empire cruise of nearly 28,000 mi. The flight, which began from Felixstowe, Eng., Oct. 14, 1927, is under the command of Capt. H. M. Cave-Brown-Cave, R.A.F.

Supermarine Southampton flying boats are manufactured by the Supermarine Aviation Works, Ltd., Southampton, Eng. The hull of this twin engined flying boat is constructed of metal, a crew of four is carried, and Napier Lion engines furnish the power.

The flight to Australia was begun by way of Italy, Greece, Egypt, and Asia Minor. The Indian coast line was followed when Karachi was reached, the planes continuing southward along the Malay Peninsula to Singapore and Australia.

New Aero Company Organized in Brazil

A new Brazilian aeronautical company, the Sociedad Anonyma Orel, has been organized at Rio de Janiero, it is reported. The capitalization of the new civil aviation concern is put at approximately $60,000.

Establishment of national aerial services in various sections of Brazil is said to be the purpose of the company.

French and German lines already are in operation in the country.

Photography, dusting, and other aerial endeavors are also planned by the Sociedad, and it is said that the company will cooperate with the civil aviation school which has been established by the Aero Club Brasileiro.

Czech Lines Report No Injury for Year

Czechoslovakian air lines were operated last year without a single death or injury, it is reported, even though air traffic was more than doubled. Passengers carried for the year totalled 4,233, many more than the 1,703 of the previous year. Passenger of goods carried increased from 450,000 lb. to 1,810,000 lb., while regularity of flights over the country's routes increased from 87½ per cent to 96 per cent.

Plan Direct Prague-Rotterdam Flights

Negotiations have recently taken place between the Czechoslovak and Netherland Governments for the establishment of direct flights from Prague to Rotterdam, with steamer connections to London. Whether the flights by the Czechoslovak company are to be began in 1928 or 1929 is not known.

Mexico Will Soon Have 100 Airports

A statement has been issued by the Mexican Aeronautic Association that the end of the year will see 100 fully equipped airports being operated in the Mexican Republic. Besides these there will be a considerable number of military landing fields.

"Stop" and "Go"

Showing the nearly completed air traffic tower under construction at the Schiphol Aerodrome, Amsterdam, Holland. Air traffic will be regulated from the tower, which is also to serve as a radio station.

SIDE SLIPS

By ROBERT R OSBORN

The attention of the Records Committee of the F A I is respectfully directed to a recent item in a New York morning newspaper—our attention caller in this case being C B Allen aeronautical writer who often uses the pen name "Clarence Chamberlin" According to this item "an average height of 6,000 mi was maintained" on the attempt to break the non stop coast-to-coast record In checking up on a record like this one, we suppose that the revolution counter on the altimeter has to be sealed by Carl Schory, too

* * * *

The Intrepid Aviator wandered into the office again today and remarked that he noticed that the successful Pacific fliers when they arrived in the Hawaiian and Fiji Islands, had been presented with flowers woven into loops and hung about their necks, and he supposed that this was the native equivalent of pajamas

* * * *

Colonel Lindbergh was presented the other day by New York University with the honorary degree of Master of Aeronautics Having heard many comments from beautiful young ladies who would not be averse to marrying this very popular but elusive gentleman, we had rather expected that the degree given him would be Bachelor of Science

* * * *

One news item telling of the presentation of this degree to Colonel Lindbergh carried the headline "Col. Lindbergh Is To Get Air Degree" How many times during our own college career did we expect the home town newspaper to carry a similar headline about us with the word "degree" omitted

* * * *

Around New York City sightseeing buses are beginning to make holiday runs out to the local flying fields As the brath er-lunged guide who is generally mounted on the front of such buses probably hasn't had an opportunity to develop a complete "line" about aviation for his customers, we'd like to offer the following as appropriate for part of his speech—

"Ladees and Gen'l'm'n, that glorious figguah what can be seen standing ovah theah by that eah with the airplane an propellah on the radiatah cap and with 'Learn to Fly' on the tiah covah—that one who can be hasrd discussing and dismissing the problems of aviation with his friends even at the distance—that man who is so faultlessly attahed in leathe helmet, glistening goggles, leather flying coat, whipcoad breeches, and leather boots, and who carelessly slaps his manly thighs with them leather gloves and smokes that cigarette in that manner which must be bahn to one and which cannot be acquahed is the feahless, intrepid student who signed up foah the ten houah course day befoah yesterday.

"That man theah who can be observed coming out the back doah of the pilot house, shoving a tooth brush and a tan dollah bill into the pocket of his ordinary business suit is the pilot who came in one housh ago from Greenely Island, and who is about to staht on his eleventh flight to Florida.

"That gen'l'm'n theah with the gray hauah an the worried look on his face and the half chewed cigah in his mouth is the managah of the field, and today he has added but two houahs to his fouah thousand houahs flying time because the office 'phone hasn't stopped ringing since 11 lahst night.

"Them gen'l'm'n theah in the back room of the hangah with theah hauds togethah and the serious an solemn looks on theah faces ah the aviation correspondents of the big New Yawk newspapahs, engaged in a black-jack game"

AIRPORTS AND AIRWAYS

Boston, Mass.

By Daniel Rockford

A contrast in monoplanes was offered recently when a new Travel Air was flown from the Boston Airport simultaneously with the little Velie Monocoupe owned and flown to this city by Sumner Sewall, war ace and traffic manager of the Colonial Air Transport, Inc., with office at Boston Local pilots flew in both planes

The newly opened Muller Field at Revere on Squire Road had its first big Sunday early in June Pilots Mike Harlow and Bon Bon de Aree together carried 70 passengers although there was but one plane on the field until 5 30 P.M when de Aree landed in from Springfield bringing a second Eagle-rock Traffic blocked the highway and the planes were kept busy until darkness.

Meanwhile at Revere Beach, nearby, Pilot Dick Wickes began 1928 seaplane operations with his overhauled Curtiss Seagull Between 5:30 and darkness Wickes took in $170

Burr Leyson, war pilot and former Boston Hadley Field air mail pilot, purchased a Travel Air which had been rebuilt by the Boston Airport Corp on the account of Harry Rally King, Chinese flying student who owns several restaurants in Boston and is learning to fly with Leyson. Leyson states that he holds a three years contract with the Nationalist Army in China and expects to sail September 21 to organize their air force. King is advertising flying instruction in the Chinese newspapers circulated in Boston and expects nine other Chinese young men to start flying lessons at once. He and Leyson expect to buy a Pitcairn Mailwing and tour the United States in the interests of the Nationalist cause this summer

Boston Airport Corp. had the largest month in its two years history when they flew 266 hr and 30 min during May, 1928 Local flying for various groups during a recent week at Boston totalled Naval Reserve at Squantum 119 hr ; Boston Airport Corp 52 hr , Dennison Airport 26 hr ; Associated Aircraft 12 hr ; Skyways, Inc , 22 hr , National Guard 22 hr ; Old Colony Airways 18 hr , Wickes 3 hr ; Army regulars and reserves 35 hr ; miscellaneous 30 hr

Beverly, Mass.

By M. L. Corney

A new air field at Beverly, Mass., was formally opened recently when more than three thousand people gathered at North Beverly to witness the dedication The new field is situated on the Hood and Swift estates off Trask Street, and it was through the generosity of C P. Hood of the H P. Hood & Sons, Inc , a large milk dealing firm, that the use of his land was made possible Added to this land is the large field from the Swift estate that was purchased by the city of Beverly, the total area comprising about 20 acres. It has two runways, one of 1500 ft , and the other of 1350 ft The field is large enough so that almost any sized plane can land under most conditions, and it is equipped with gasoline, oil and water stations, which can amply provide for the refueling of planes. Aviation experts claim it to be one of the finest fields north of Boston While some work still remains to be done on the field, it is safe to say that it will be finished within a month

During the morning of the dedication four planes landed, getting away again before noon. Shortly after one o'clock a Massachusetts N G plane, piloted by Lieut. Clyde C Jakway of Beverly, with Lieut. George Sprague of Saugus, Mass., as observer, made a landing on the field, and in so doing blew a shoe on one of the wheels, the only accident of the day It was not long before a sister plane of the 101st Observation Squadron was overhead and dropped another wheel to replace the blown one

Later in the afternoon a plane from the naval air station at Squantum arrived at the field Lieut. Joseph B. Lynch, U.S.N.R.F., was the pilot and he was accompanied by Lieut John J. Shea, U.S.N.R.F During the entire day Army, national guard and naval planes did stunts overhead.

Mayor Patch Delivers Address

Mayor Roy C. Patch of Beverly delivered the dedication address, in which he thanked the Beverly Aero Club for its unselfish service in the enterprise; the United Shoe Machinery Corp. for having the name "Beverly" with arrows pointing to the field painted on one of the roofs; C. P. Hood for his donation, and the Beverly Chamber of Commerce, who originated the idea of the Beverly Airport and who fathered the Aero Club The secretary of the Chamber of Commerce, Edward Colbert, and the airport committee, com-

Fashions for Western Pilots

From Idaho we get Pilot George H Buck's idea of what the "well dressed" aviator must have in case of a forced landing in the wilds— One carrier pigeon, one loaf of bread, one big knife, one canteen of water, one ham, one shotgun, one six-shooter, one axe, and one motor generator to supply lights.

posed of Robert Robertson, chairman, and Fred A. Newman and P. Russel Bosworth, were the instigating figures behind the project.

Philadelphia, Penna.

Taking his first airplane flight, Dr. C. A. Lynch, rector of the Second Church of the United Brethren in Christ, was so impressed that he devoted his next sermon to a description of the trip. Robert P. Hewitt piloted the plane.

The June meeting of the Aero Club of Pennsylvania, recently held at the Engineers Club was addressed by Lieut. Arthur Gavin of the Philadelphia Navy Yard, co-pilot of the Navy's new PN-12 on its recent record-breaking seaplane endurance flight. He told of the flight.

W. Laurence LePage, assistant to the vice president of Pitcairn Aviation, Inc., with headquarters here, announced this week that William J. Welsh, a pilot-mechanic at Pitcairn Field, Willow Grove, Penna., for the past two years, has been sent to the Richard E. Byrd Flying Field at Fort Lee, Va., to succeed the late James R. Reid, formerly a reserve pilot at Richmond.

Recent visitors at the Philadelphia Airport, Island Road below Tinicum Avenue, have included Arch E. Maddock of Trenton, who flew in with a new Waco 10 (OX 5), Pilot Pennock of the Burlington County Aero Club at Moorestown, N. J., also piloting a new Waco 10, and Lee Boyer of Deadwood, S. D., who flew in with a friend as a passenger in an OX-5 Eaglerock. The Maddock and Aero Club planes recently were purchased from the Ludington Philadelphia Flying Service, local agents for Waco and Fairchild planes.

A move is afoot to raise $54,000 for a Philadelphia to Paris flight, using a twin-engined Sikorsky flying boat. Capt. Louis V. Emherger of 3813 North Smedley St., former Army pilot, is one of the backers and will be co-pilot if the plan materializes. Lieut. Arthur Gavin, U.S.N., stationed at the Philadelphia Navy Yard, has been mentioned as the second man at the controls. He refuses to deny or affirm the report. A New York woman is said to be interested in the proposed flight not only as a backer but as a prospective passenger.

Jackson, Mich.
By L. V. Kendall

Reynolds Field, the new municipal airport, was opened in this city recently with dedicatory exercises conducted at the base of a flagpole, the gift of Richard F. Smith Post, American Legion.

Wiley R. Reynolds, donor of the field, in his presentation speech said:

"Deeding this property to the city of Jackson last December for an aviation field demonstrates my belief in Jackson, and my desire that Jackson may have one of the finest aviation fields in the state of Michigan."

Immediately after the dedicatory ceremony attention centered on the two great runways where more than a score of planes had lined up for an aerial parade. On their return, after circling the city, skilled pilots kept 10,000 spectators "sky-eyed", with a whirl of stunts and clever maneuvering.

The stunting of Art Davis of Lansing, Mich., Pat Tnohey of Detroit, and Lieut. R. L. Schoenlein of Selfridge Field were features. The latter flew a Curtiss Army pursuit plane.

Next in interest, from the spectators point of view, was the dead stick landing contest and the parachute jumps.

Pat Tnohey of Detroit was awarded first place in the former event for landing his Waco 9 plane 18 ft. from the finish mark. In the parachute jump, Dave Mahoney of Butler Creek carried off first honors landing about 100 yd. from the designated mark.

Several of the planes, especially "The Pride of Detroit" the "Miss Hammond" a Ford all metal plane, and the baby

Manoc upe and Driggs-Dart planes drew special attention. The latter plane, made in Lansing, staged an exhibition flight. This plane, with a 28 ft. wing spread, was piloted by Austin R. Narrin of Lansing.

Baltimore, Md.
By Harry Rudo

The Chesapeake Aircraft Corp. operating at Logan Field reports brisk business. Thousands of passengers have already been carried, and on Sundays more than 400 passengers are carried. A great many are turned away even though nine planes operate continually. Due to the popularity of tours to Washington, over Annapolis, and Gibson Island, Gettysburg and the large dam at Conowingo, a second Fairchild cabin plane has been purchased and delivered.

The Chesapeake Aircraft Corp. has the agency in Maryland, Virginia, and the District of Columbia of Travel Air planes and in Maryland of Fairchild planes. Four Travel Airs have recently been sold to the Potomac Air Service of Washington, and two to the Virginia Airways Co.

Much aerial photography and mapping is also being done. Although aviation students are accepted, there are not as many enrolled as there could be, due to the policy of the organization not to accept those who expect to become air mail pilots immediately after the course or those who have just enough money to complete the course.

What is thought to be a unique experiment has been started by The Hub, one of Baltimore's leading department stores. Aviation classes, in which the theory of flight and the principles of construction of airplanes are explained, are held in the store every Saturday morning. The Boys' Aero Club, as it is called, is open to all boys between the ages of 12 and 19. Membership is free. Lectures are given weekly by Maj. William D. Tipton, commandant of the Air Corps of the Maryland National Guard, and other prominent aviators.

The Air Corps at Washington has allowed the use of over 100 films on different phases of the subject of aviation. Response has been instantaneous and already about 200 boys attend the meetings weekly while many more are enrolled.

A Fairchild Cabin plane of the Chesapeake Aircraft Corp. here was chartered by the United States Hoffman Machine Co. of New York for a 3,000 mi. tour of inspection of its branch offices in the South and Middle West. Stops are to be made in Greensboro, N. C., Atlanta, New Orleans, Dallas and also cities in Oklahoma, Kansas, and Ohio.

W. H. North and Wayne Mendell of New York and C. H. Brewster of New York and Baltimore, representatives of the organization were passengers. Maj. William D. Tipton, general manager of the Chesapeake Aircraft Corp., was pilot.

Wausau, Wis.
By W. C. Sampson

A new Whirlwind engined Waco 10 was recently flown to Wausau from the factory at Troy, O., by John P. Wood. This is a special paint job with complete set of Pioneer instruments and will be entered by Mr. Wood of the Northern Airways at Wausau in the National Air Tour and in the New York-Los Angeles Derby. The Wausau entry took fourth place in each of these events last year and is expected to be "in the money" this year as well.

A new Ryan Brougham has been delivered to a group of Wausau business men, incorporated as Associated Aviators, Inc. This plane will be used for business trips and at other times for commercial cross country work. The summer camp of President Coolidge is only a short distance from Wausau which should boom the air taxi business this summer.

With the installation of a beacon and field flood lights at Alexander Airport, the improvements are about completed and the lighting is in readiness for day or night flying.

Through the concerted efforts of the Wausau Chamber of Commerce and the Wisconsin Valley Electric Co. it is expected to install on Rib Mountain (two and one-half

miles from Alexander Airport) a warning beacon This is the highest point of land in several surrounding states and it is expected that the beacon will be of great value to night fliers as well as a big advertisement for the City of Wausau.

Wausau will entertain during the American Legion State Convention August 13 to 15 the entire United States Army Pursuit Group of Selfridge Field, Michigan

Atlanta, Ga.

By J. K. Outley, Jr.

Twenty-two members of the newly organized Junior Chamber of Commerce Aero Club have enrolled in the Pitcairn Flying School, Candler Field, and reported for their first lesson Membership in the Junior Chamber Club is limited to those who pilot planes themselves or fly a specified number of hours a year as passengers. The addition of the Junior Chamber students brings the Pitcairn enrollment to 62.

Miss Gladys Poole, of Atlanta, one of the few women fliers in the South, recently soloed successfully at Candler Field Miss Poole was instructed by Doug Davis

The winning slogans in an air mail contest conducted throughout the southeast by Pitcairn Aviation, Inc operators of the Atlanta-New York air mail line were: "Airmail-it", "Use The Air To Get It There", and "Air Mail Conquers Time".

Lieut Edgar E Glenn, an organizer of the Atlanta chapter of N.A.A. and air officer at Georgia Tech for the past two years, was tendered a farewell dinner on the occasion of his transfer to command of a reserve unit at Muskogee, Okla

The City Council of Atlanta will be asked to erect a $3 000 building at Candler Field to house the railway mail service transfer station and a weather bureau station The railway mail transfer station is one of the only two in the United States, the other being at Hadley Field.

Wichita, Kan.

By S. B Kiefner

Wilbur B May, a high official of the May company, which operates a large chain of department stores, has purchased a special Travel Air plane powered with a J-5 Wright Whirlwind engine He came to Wichita by train and left the same day for St. Louis with his new plane The Barnes Fliers of Detroit, Travel Air representatives in Detroit, also have accepted delivery on a new Travel Air plane powered with an OX-5.

The first Travel Air manufactured is still in such good condition and giving such good service that it may not be retired from service when it gets back to the Wichita factory in a trade in Officials of the company are contemplating the idea of keeping it working, for the factory is booming along full blast and is barely able to keep enough planes on hand to do passenger and transport work, so great is the demand from buyers

O E Scott, manager of the St Louis municipal field and pilot for Harry Bixby, president of the St Louis Chamber of Commerce, placed the order for the first Travel Air plane in 1924. He bought it for Bixby. Scott has ordered another Travel Air powered with a Whirlwind

Cincinnati, O.

By Charles E Planck

An observation office on the observation porch of the Embry Riddle Co's office at Lunken Airport, Cincinnati is in course of construction

The office will be 30 x 15 ft. in size and will have walls almost entirely of glass window construction Stanley C Hallman, operations officer, and his assistant, Rex Herker, will be housed in the new office From their desks, they can command a full view of the entire field The offices are set on an artificial knoll at one side of the field, with hangars and approaches in full view.

With the addition of the operations office, the office building complex in architecture and convenience with the most modern air depot buildings of old established airports, both here and abroad.

Toledo, O.

"An ideal airport," was the characterization made of Toledo's municipal transcontinental field by R W Ireland, traffic manager of the N A T, who recently inspected the field. "The airport will be a constant delight to aviators because the landing hazards are nil. There is unlimited landing space and the equipment is the most modern," Ireland explained. He was in Toledo to explain the advantages of air mail to business men Air mail leaving Toledo at night will be delivered on the first carrier service the following morning in New York, Boston, Philadelphia, and Washington, Ireland said Westbound mail will arrive at the Pacific Coast 30 hr after leaving Toledo

Special airplane express service was recently inaugurated in Toledo by the American Express Co. Herman Sternman, Toledo is in charge of the air express under the direction of Agent White. A special truck will meet all incoming and outgoing N A T planes. The rate from Toledo to New York is $1 a pound and from Toledo to Los Angeles $3 per pound Schedule of the planes which carry express is as follows. Westbound, 3 10 A M, 5 10 P.M., Eastbound 10 50 A M, 10 50 P M Detroit-Toledo plane leaves Toledo at 4 55 A.M., arrives Detroit 5 30 A.M., leaves Detroit at 10 05 P M, arrives Toledo 10 40 P.M.

Scott High School's manual training class is actively engaged in turning out model airplanes in preparation for a model meet scheduled soon Winners of the events will compete in the Detroit model plane contests. Toledo theatre owners and business men are encouraging the youths by offering them free show tickets and other prizes for efficient and original work. Merrill Hamburg, national secretary of the Airplane Model League, recently addressed several hundred boys here.

Akron, O.

By Walter E. Burton

Work on the improving of Fulton Field at Akron, O., is progressing rapidly, in preparation for the beginning of air mail service through Akron on or about July 1

All hazards have been removed from the field, and portions of it have been graded Boundary and hazard lights and beacon are being installed. Fulton Field is the site of the proposed Akron Airport, and is unusual in that it lies entirely within the corporation limits of Akron.

Akron has been named as one of the regular stops on the new Cleveland-Louisville air mail line which is to begin operations sometime in July A definite date for the starting of service has not been announced by postal officials. Efforts are being made to have Col. Charles A Lindbergh pilot the first mail plane over the new route

Camden, N. J.

Arthur A Lynah, one of the students in the first class of the Cresson Air Service, Inc., recently made his first solo flight at the Crescent Airport. He is a brother of Francis P. Lynah of Philadelphia, the Crescent company's sales representative Both have purchased three place, OX-5 Challenger planes for commercial operation in and near the Philadelphia-Camden district

The June meeting of the South Jersey Aviation Club of Camden held in the Chamber of Commerce auditorium, Walt Whitman Hotel annex, was addressed by Hollinshead N. Taylor president of the Aero Club of Pennsylvania, chairman of the aviation committee of the Philadelphia Chamber of Com

merce, and a member of the Pennsylvania Aeronautics Commission. He stressed the importance of more airports in and near Camden, declaring that aviation is increasing with such rapidity in this section that the Camden Airport, in Camden, and the Crescent Airport, on the outskirts of the city will be insufficient in the near future to care for the needs of commercial aviation. Aviation motion pictures were shown during the meeting. Maj. Earl A. Cryne, Air Service Reserves, president of the club, presided and introduced Taylor.

Major Cryne announced that the club's executive committee has reached an agreement with the Aviation Corporation of America for the erection of a clubhouse at the Camden Airport, on State Street and Cooper River.

Atlantic City, N. J.

The Crescent Air Service, Inc., operator of Crescent Airport, Camden, and Bader Field, Atlantic City, has announced through Reuben A. Fowler, secretary-treasurer of the company, a series of improvements at Bader Field. The 50 acres now being used as an airport are to be doubled in size in the near future, according to present plans of Atlantic City's municipal authorities.

Grass has been planted at both airports, additional grading has made the fields level, and both have been improved in other respects. Challenger three-place OX-5 planes are being used. Frederick A. Riedel of Collingswood is president of the company.

Twenty-five members of the Aero Club of Atlantic City have signed up for the aviation course being offered at Bader Field by the Crescent Air Service, Inc. The club has appointed a committee of three to round up the prospective students.

Minneapolis, Minn.

By H. A. Lindbergh

The Northwest Airways report the sale of a Ryan Siemens Waco to Neil R. Hennessy of Minneapolis. This plane is expected to be equipped with pontoons within the near future. Passenger travel on the mail line between Chicago and the Twin Cities as well as hopping at the Wold-Chamberlain Airport in Wacos is brisk and continues to increase. A. P. Nelson is in charge of sales and is instrumental in convincing a number of people that upper air travel is a safe and quick means of getting there as well as back.

An OX-5 Command-Aire was recently sold by the Mid-Plane Sales & Transit Co. to C. R. Lewis, who expects to make a two weeks' trip with one of his friends to Seattle and other points on the West Coast. The large hangar constructed for the Mid-Plane Sales & Transit Co. is now completed and ready for occupancy. It will house the Fairchilds used on the passenger runs as well as for the planes used for student training and passenger hopping at the field. This hangar is the first to be completed at the airport since it was placed under municipal control. Homer Cole is a full time pilot with this organization and undoubtedly will fly one of the Fairchilds on the air lines operated by the Mid-Plane Sales & Transit Co.

Virginia, Minn.

A Ryan Brougham equipped with Edo pontoons will be piloted by C. R. (Dusty) Rhodes of this city at one or more of the numerous lakes in the Arrowhead country during the busy summer season. This plane was housed in the hangar at the St. Paul Municipal Airport previous to being outfitted with pontoons. M. S. Kinston of Eveleth, a prominent mining man of the iron range is associated with Rhodes in the company that is operating this Ryan monoplane. As most of the activities will be carried on in St. Louis county, in which the owners are also residents, the plane has been christened the "Spirit of St. Louis County."

C. H. Sigel, Eaglerock dealer in Northeastern Minnesota, has spent most of his time in other cities throughout the state hopping passengers with Art Pearce as the pilot. As soon as [illegible] field [illegible] be ready to be used regularly Sigel will return to [illegible] town to carry on the proposed activities under the [illegible] the Northern Minnesota Flying Service. Three [illegible] Eagler[illegible] made a trip to Virginia and several of the range [illegible] towns[illegible] boost local interest in aviation with L. W. Chandler [illegible] of the [illegible]innesota Aircraft Co. of Minneapolis, distributor of [illegible] the Ec[illegible]lock within the state, as one of the passengers. The [illegible] consen[illegible] was that the field in Virginia would be an ideal lo[illegible] [illegible]cation which to operate as soon as necessary improve[illegible] [illegible]ments [illegible] completed.

San Francisco, Calif.

This city's municipal airport at Mills Field, designated "America's Model Airport", has just completed the first month of its second year of operation with a volume of business far in excess of any of the previous twelve months since its establishment.

In the report of May business just made public by Supervisor Milo F. Kent, chairman of the city's airport committee, it is shown that there were 1,271 flights and landings of planes of all types coming from and going to all parts of the world, with 2,114 passengers. The revenue received from hangar rentals alone totaled $1,112.35 in May, lifting the airport to a position approaching self support. In the 13 months since Mills Field opened for business its log has recorded 9,348 flights and landings and 14,464 passengers.

The month of May marked the selection of Mills Field as the terminal of the Maddux Air Lines, Inc., and the Western Air Express, both operating a daily air passenger service between Los Angeles and this city. The West Coast Air Transport, operating an air transportation service daily from Seattle has also picked Mills Field as its terminal. Another daily air passenger service is being conducted to and from Mills Field by the Beacon Airways, with stops at San Joaquin Valley points, including Fresno.

Frank A. Flynn, superintendent of Mills Field since it opened, is ranked among the leading airport executives of America. He achieved fame in the World War as an American ace.

Lincoln, Neb.

By Duncan Price

For the first time in the history of Nebraska, the state government has paid for airplane service in connection with pursuit of criminals. The state auditor allowed a claim for $150 made by the Lincoln Aircraft School for taking an officer in pursuit of bank robbers.

The claim was for 600 mi. at 25 cents a mile. This is the rate that records say the state paid for automobile hire when they first came into use. It now pays eight cents a mile for automobile service.

Official recognition was given the plan to establish airports in three eastern Nebraska cities on the proposed air route between St. Joseph, Mo., and Omaha, Neb., when E. M. Haight, airways extension superintendent of the Department of Commerce, conferred with a group of Falls City, Neb., men concerning the project.

The Falls City aviation committee, Mayor G. S. Lyon, Henry S[illegible]mann, secretary of the chamber of commerce, I. B. Wh[illegible], E. W. Simpson and Harry Pence, heartily endorsed the [illegible] and immediately sanctioned the proposal to have a federal airport man come to Falls City from Washington to [illegible] falls [illegible]thine the plan.

Other airports probably would be established at Auburn, Neb[illegible] and Nebraska City, while a third would be across the Missouri River at Forest City, Mo.

Falls City's flying field, only recently dedicated is exceptionally well located and would be a good site for a commercial field. It is on the outskirts of the city and lies adjacent to the main highway between Lincoln and Kansas City.

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Although the field is not the necessary 2,000 ft. square, it is believed that it will be an easy matter to obtain the additional ground needed.

Watertown, N. Y.

By Rollin J. Fairbanks

At a recent meeting of the city council an appropriation of $10,000 was adopted for the purchase of 180 acres on the Dexter Road about six miles west of the city, for a municipal airport. Although this year's appropriation covers no improvements, another year will see runways constructed and possibly hangars erected. The field is on a state highway and connected with the city by bus. Frederick H. Taylor, who conducts a local air service, will move his hangar to the new field and at least six buildings in the city will be marked to guide visiting airmen to the airport.

Three Curtiss Falcons were flown here by National Guard officers Capt. L. G. Brower, Lieuts. R. P. Appel, J. F. Ward, and Paul Meyers, and Lieut. M. L. Elliot of the Army air service. They carried Senator Griswold Webb and Maj. Peter Brady, who are conducting a survey of the airports in the state, preparatory to establishing an air mail service. Watertown is listed as being on the air route to Canada and its newly purchased field was highly approved of by the visiting officers.

Frederick H. Taylor recently flew his new Stinson monoplane here from Detroit where its delivery was held up pending the arrival of an engine. Accompanying Taylor besides his mechanic, Archie Laverty, was Harold Conde, chairman of the local committee on aviation. This makes Taylor's second Stinson plane, a biplane having been purchased last year.

St. Louis, Mo.

By M. L. Alexander

The first new production plane that ever made its home at Lambert-St. Louis Field—O. E. Scott's Travel Air—is being flown back to Wichita by Scotty and traded in on a new Whirlwind. The old plane, in which Harold M. Bixby, chairman of the board of the Chamber of Commerce, has an interest, is the first to be manufactured by the Travel Air company and was accorded the dignity of a name, "Maiden Wichita."

Scott, who is field manager, says the plane has been flown 1400 hr., which would give it a total of about 110,000 mi. Nevertheless it is still in good shape and has been in service continuously.

Dan Robertson, chief instructor for Robertson Flying Services, has been a frequent passenger on the air mail route during the past several weeks and rumor has it that he is being groomed for a job as mail pilot. He has had more than 2,000 hr. in the air.

Parks Airlines has 96 active students, the largest class of student fliers in the St. Louis district. Seven instructors are kept busy teaching flying at the East St. Louis field.

Frank Wigton, one of the instructors, is the winner of the Carnegie medal awarded him for landing a burning airplane and two passengers in Ponca City, Okla., in 1923. He was a test flier in the Army during the war.

Spokane, Wash.

By E. Harvo Partridge

Negotiations for purchase of 97 lots, adjoining the Spokane Airport where the 1927 National Air Races were conducted have been completed by the city commissioners.

The new land will be utilized for a dual purpose by the city. It will provide space for hangars and keep them off the field proper and will afford further safeguards to the city's water supply which comes from a subterranean stream underneath the field. The lots bought lie to the south east and west of the field proper.

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